REPORT RESUMES

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IMPLICATIONS OF VOCATIONAL EDUCATION FOR PLANT SITE LOCATION.
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DESCRIPTORS- *GEOGRAPHIC LOCATION, *INDUSTRY, *VOCATIONAL EDUCATION, TECHNICAL EDUCATION, SELECTION, *SCHOOL INDUSTRY RELATIONSHIP, SURVEYS,

THE PURPOSE OF THIS PROJECT WAS TO DETERMINE THE SIGNIFICANCE OF VOCATIONAL-TECHNICAL EDUCATION IN THE MANUFACTURING INDUSTRY PLANT SITE SELECTION PROCESS. FROM A COMPOSITE LISTING OF 619 MANUFACTURING COMPANIES WHICH HAD LOCATED IN COLORADO, NEW MEXICO, ARIZONA, NEVADA, IDAHO, UTAH, AND WYOMING SINCE JANUARY 1960, 116 INTERVIEWS AND 90 COMPLETED QUESTIONNAIRES WERE OBTAINED. SIXTY-FIVE PERCENT OF THE RESPONDENTS INDICATED THAT VOCATIONAL EDUCATION WAS A SELECTION FACTOR. OF 28 DIFFERENT PLANT SITE SELECTION FACTORS SUBMITTED BY THE INDUSTRIES, VOCATIONAL EDUCATION RANKED APPROXIMATELY IN THE MIDDLE IN DEGREE OF IMPORTANCE. VOCATIONAL EDUCATION PROGRAMS MENTIONED AS FACTORS IN PLANT SITE SELECTION WERE MACHINE SHOP, METAL FABRICATION, ELECTRONICS, BUSINESS AND SECRETARIAL, AND ELECTRICAL. THE SIX FACTORS CONSIDERED MOST IMPORTANT IN SITE SELECTION WERE LABOR SUPPLY AND LABOR RELATIONS, GROUND AND AIR TRANSPORTATION, AVAILABLE LAND AND BUILDINGS, MARKET AND PROXIMITY TO MARKET, COLLEGE EDUCATION AND VOCATIONAL EDUCATION, AND ALLIED BUSINESS AND FEDERAL BUSINESS RELATIONS. RECOMMENDATIONS CONCERN THE NEED FOR VOCATIONAL EDUCATORS TO INFLUENCE PLANT SITE SELECTION BY ADVERTISING THEIR SCHOOLS AND THE JOB CAPABILITIES OF THEIR STUDENTS. (PS)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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Implications of Vocational Education for Plant Site Location

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The Vocational Education Act of 1963,
P. L. 88-210 Section 4 (c)

GRANTEE INSTITUTION

Utah Technical College at Provo, Utah
(Formerly Utah Trade Technical Institute)

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PART II

INTRODUCTION

One can, almost daily, look in circumspect and literally see demographic, economic, and technological changes take place everywhere about him. Circumstances relative to life change, and if one does not keep pace with those changes, he soon only looks in retrospect. As change takes place, people's lives are affected. Automation and the technological advancements are requiring that society keep pace, literally, through shifting from low gear into a high-high gear, or to be displaced from the main workings.

The counterpart of the Model "T" ruxel gear of yesteryear is today a highly sophisticated electric motor, mounted on a wheel, serving as both power train and power supply, controlled and manipulated by a pre-planned computer card. As these technical changes take place, so does our economy change. Machines replace workers; the unskilled and the unwilling-to-change are the first to go. Running concurrently with these changes are two most important facts, namely: (1) that the manufacturing industry is an integral part of that change, including everything from research and design, to computorizing controls which regulate the flow of production of all the gadgetry that helps bring about the conveniences which necessitates the change in and of our lives; and (2) the second important fact relates to man himself, and his need to keep pace in today's explosion of knowledge. New skills and techniques require education almost from cradle to grave.

New manufacturing plants, with new processes in new locations, are the vogue of the day. Greater emphasis is placed, by communities from Maine to California, and from Florida to Washington, to get the new manufacturing industry to locate in their community.

Chambers of commerce, manufacturing associations, government officials, and many others, are all engaged in the competitive process of attracting the new industry into their community and state.

Educators, including those involved in vocational-technical education, are either in the main stream of trying to attract the new industry to their community, or wondering what their true role is in this encouragement process.

This research project was designed to determine, from the manufacturing industry itself, the significance vocational-technical education played in their plant site selection process.

A. THE PROBLEM

For many years vocational school people, community leaders, government officials, and business organizations have claimed that the presence of a vocational-technical school in a community was an important factor considered by manufacturers as they looked for new plant sites.

Some communities are soliciting legislative approval for tax money to build vocational schools, technical colleges, community colleges, or junior colleges, upon the basis that this is an important "tool" in enticing industry into their community.

States are launching into building these kinds of schools, in strategic locations, with one of their objectives being to lure the new manufacturing industry into their state.

B. HYPOTHESIS AND OBJECTIVES

It is the hypothesis of this study that these claims and projections are based upon limited observation, and in no instance, upon investigative research to validate their contentions.

The problem, then, is to indicate either a positive or negative relationship of vocational education as a factor in plant site selections.

Another hypothesis advanced by this study is that very little has been written, substantiated by research, upon vocational-technical education as a factor in manufacturing plant site selection. The problem, stated in its several dimensions, was:

1. To determine if vocational-technical education was considered by manufacturers as a factor in their plant site selections.
2. A determination of the factors considered in the plant site selection process. (Vocational-technical education was considered in rank of importance with the other factors.)
3. To determine if certain organizations, including vocational school educators, were looked to for assistance in the selection process.
4. To determine if public relations efforts, such as school information brochures, were helpful in the selection process.
5. To determine if plant site selectors visit the vocational school facilities prior to selection of their sites.

6. To determine if plant site selectors secure a commitment from vocational-technical schools of their willingness and ability to train workers for the company.

7. To determine the preference placed upon kinds of schools conducting vocational education as factors in the selection process.

8. To determine the importance placed upon levels of vocational education in the selection process.

9. To determine the specific vocational courses which are factors in the selection process.

10. To designate the importance of certain factors, such as community attitude toward vocational education, which might enhance vocational-technical education as a factor in the selection process.

11. To designate the importance of the proximity of the vocational school to the proposed plant site in the selection process.

12. To designate the relative importance placed upon vocational-technical education as a factor in plant site selection, by various catagories of the manufacturing industry.

13. To determine if companies of varying sizes assess vocational-technical education differently in the selection process.

14. To determine if companies, locating plants in the several states covered in this project, assess vocational-technical education differently in the selection process.

15. To determine alternatives to vocational-technical education as factors in the selection process.

16. To compare results of this study to other studies that have designated plant site selection factors, and to determine the degree of correlation.

C. COROLLARY OBJECTIVES

It is anticipated that three corollary objectives would grow out of the project, including:

1. A report would be available to supply vocational school administrators with valid information, determined through research, as to whether or not vocational or technical education curriculum offerings in their community can attract new industry, or help existing industry expand their operations. With this information, each curriculum in vocational or technical education can be evaluated as to its effectiveness in meeting some of the needs of industry.

2. The same report could be used to supply state directors of vocational education with information which could help them to parcel out Federal and state money to the several areas of the state, for expanding or building new vocational and technical education facilities and programs.

3. To determine if a commitment by state or local boards of education to provide vocational and/or technical education facilities and programs, in an area where they do not exist, is sufficient to encourage a new manufacturing company to locate in any given area.

D. PROCEDURE

The following steps were taken in drafting the Research Proposal and conducting the study:

1. A first step was to determine if the project was meaningful and desirable for vocational school people, industrialists, chambers of commerce, etc.

2. A second step was to seek the advice of research specialists as to the best methods to use to gather the information.

3. These steps were followed by an extensive survey of the literature, to validate the hypothesis that very little was written about the importance of vocational-

technical education as a factor in manufacturing plant site selections.

4. The research proposal and the questionnaire were drafted and given to several vocational school personnel and industrialists, to have them evaluate both, in terms of information to be obtained and methods of acquiring the information.

5. After changes were made, the proposal was submitted to the Research Division of the U. S. Office of Education for their approval.

6. The U. S. Office of Education recommended that consultants be selected to evaluate the project and questionnaire. A statistician and an economist were employed, and did make several recommendations, which were encompassed in the project, and then approved by the U. S. Office of Education.

7. After the project was approved, vocational educators, chambers of commerce, manufacturing associations, and government officials in the seven states were contacted and asked to supply lists of the new manufacturing plants which had located in their states since January 1, 1960.

8. Lists of the new companies were made, indicating the type of business, number of employees, and location.

9. An itinerary was established, wherein the chief investigator traveled through the seven states, contacting the company officials at their plant locations. The selection process was done by getting a map of the city, and identifying the company location on the map. All companies which could be located were then identified according to number of employees, and type of product manufactured. Some of each catagory were then singled out for interview. The selection process amounted to ease of locating the various plants.

10. The series of interviews took place in each state, and were followed by sending the questionnaire to all known companies that had not been interviewed.

11. Follow-up letters were sent to those companies failing to answer the first correspondence.

12. The results obtained from the interviews and questionnaires were cut on IBM Key Punch Cards.

13. The information on the cards was then programmed through the computor, where statistical analysis of the data was made.

14. The report was written, typed, reproduced and assembled for distribution.

15. A summary paper was then prepared and presented to the U. S. Office of Education.

E. PARTICIPANTS

Approval was obtained from the following to use their names in support of the project:

1. Chamber of Commerce of the United States
2. National Association of Manufacturers
3. Vocational Education Directors of the Seven States
4. Chambers of Commerce People from the Major Cities Throughout the Seven States
5. Government and Industrial Development People from the Seven States
6. Business People Interested in the Project

None of the foregoing groups did any of the investigation. However, much information was obtained from them relative to names and addresses of firms to contact, and knowledge of studies previously made.

People directly involved in the research project, besides the principal investigator, included:

Myrlan A. Brown, Research Assistant
Kay Thatcher, Research Secretary
Colleen Billings, Secretary

F. INSTRUMENTS*

One instrument was designed from which to gather the desired information. The instrument was used as the interview instrument, as well as the questionnaire, which was mailed to all known companies not interviewed.

G. POPULATION AND SAMPLE

The names of manufacturing companies, who have located in Colorado, New Mexico, Arizona, Nevada, Idaho, Utah, and Wyoming since January 1, 1960, were solicited from the afore-mentioned participants. A composite listing of all companies received from these sources was made and designated as the initial population of this study.

Two states, Arizona and Idaho, were visited twice for the purpose of locating and interviewing respondents. This was felt necessary in Arizona because of the small percentage of returns received from the questionnaire. The second visit to Idaho was for the purpose of trying to locate plants, since only a very limited listing was available. Both Idaho trips proved quite fruitless, whereas the trip to Arizona produced the desired results.

---

* A copy of the instrument is located in the appendix.

H. POPULATION BREAKDOWN

Composite Listing of Companies	619
Companies Mailed Questionnaires	505
Completed Questionnaires Returned	90
Uncompleted Questionnaires Returned as Being Unrelated to the Survey	39
Companies Contacted for Interview	138
Companies Interviewed	116
Companies Contacted for Interview, but Falling Outside the Scope of the Project	24
Total Number of Companies that Returned Completed Questionnaires or were Interviewed	206
Total Number of Companies that Responded the Survey was Unrelated to their Company	63
Total Number of Companies--619, Times Correction Factor of 69% (Correction Factor Determined by Dividing 206 into 63 and Multiplying by 619.)	427
Percentage of Companies Contacted	100
Percentage of Companies (Correction Factor Applied) Interviewed and Completing Questionnaire	48
Percentage of Companies Returning Completed Questionnaire (Correction Factor Applied)	21
Percentage of Companies Interviewed (Correction Factor Applied)	27

I. METHODS USED

Information received from the respondents was cut on key punch cards and programmed through the computor, with chi square, rank correlation, and cross classifications being made.

PART III

REVIEW OF RELATED LITERATURE

Considerable research of the literature was made and presented as part of the Research Proposal.

In the original search of the literature, a three-pronged approach was used to scan the literature to ascertain pertinent information related to this Research Proposal:

> A. Inquiry was made of the Chamber of Commerce of the United States, United States Department of Labor, United States Department of Health, Education and Welfare, and both United States and the Utah Department of Employment Security to determine if they had knowledge of studies which might have been made anywhere in the United States which relate to this Research Proposal.

Chamber of Commerce of the United States Reply: Mr. John E. Harmon, Director of Manpower and Development Training, supplied a copy of their booklet, "Target: Employment." The booklet listed 35 different studies made by various Chambers of Commerce throughout the United States. One of these studies, "Vocational Education in Pittsburgh Public Schools," is a study of industries and schools in the city of Pittsburgh, the education and training required for successful job placement in the various skill levels, and types of employment available in the area. Nowhere in the report was reference made to vocational-technical education as a determining factor in a new manufacturing company locating in a community. The other 34 studies did not relate to nor answer the question stated in this research proposal, either.

U. S. Office of Health, Education & Welfare Reply: Mr. Sherill D. McMillin, Director, Program Planning and Development Branch of Health, Education and Welfare, made reference to studies made in Georgia, North and South Carolina, and Virginia. Correspondence was sent to each of these states, requesting studies which might relate to this research proposal. Several brochures of studies made in these states were received. The following references were made, indicating that vocational education attracts new industry. The title of each study received, together with the statements made which relate to this research proposal follows:

> North Carolina's Opportunity - - a digest of the North Carolina Study of Technical and Skilled Manpower.
>
> Prepared by: The Employment Security Commission of North Carolina.
>
> In this digest they make the following statements:
>
> Industrial development is important -- It means jobs but manpower development is equally important. It can mean the right number of the right workers on the right jobs at the right time. Manpower planning and development complements industrial development because the availability of skilled labor in sufficient quantity attracts new industry and encourages employment growth in existing industries.
>
> Skilled Manpower Attracts Industry.
>
> Georgia - State Department of Education - presented a position statement regarding Georgia's Vocational-Technical Schools. The following quote is taken from their report:

> The area vocational-technical schools are designed to be flexible in order to meet the needs of industry in our rapidly changing economy. Already these schools are paying off as evidenced by the fact that major new industries are moving into counties where these schools are located, and are locating as near the school sites as possible.

> Virginia - report of a 1963 Commission on Vocational Education made the following quote:

> In addition, if Virginia is to continue to attract new industry, the need for workers with new and advanced skills becomes even greater.

> South Carolina - Correspondence failed to produce any studies conducted in South Carolina relating to this research proposal.

Analysis of studies made in Georgia, North Carolina and Virginia, from which the preceding projections are drawn, together with a similar analysis of studies made in a majority of the other fifty states, indicated that:

1. Previous studies, regarding vocational-technical education as an influence in attracting new industry into a community, bears out the contention that their projections are based upon assumption, rather than fact established through research.
2. It was felt that there was need to determine the relative importance of vocational-technical education as a factor which might influence a new manufacturing company to locate in a community with a strong vocational-technical education program, and that this should be established through research.

United States Department of Employment Security Reply: The United States Department of Employment Security referred their inquiry to the

United States Department of Commerce. Mr. Isidore Bogdanoff, of the United States Department of Commerce, made the following statement:

> Although studies of plant location factors frequently cite the advantages of educational facilities, this agency is not aware of any specific study conducted by the Federal Government evaluating the relative importance of vocational education programs as a factor in influencing business location decisions.

United States Department of Labor Reply: No information was received from the United States Department of Labor that relates to the significance of vocational-technical education as a factor in plant site selections.

Utah Employment Security Commission Reply: The State Director of Employment Security for the State of Utah indicated his office knew of no studies made in Utah or the Nation, which corresponded to the design of this research proposal.

B. Research studies on vocational-technical education were received from the fifty states. After perusing all of the studies and literature obtained from the states, again no reference was made regarding the importance of vocational education as a factor which influenced manufacturing companies in their plant site selection.

C. The literature, books, periodicals, etc., were scanned to determine if a similar study had been made. Reference was made to one article in the Iowa Business Digest, October 1965 issue, by Peter P. Schoderbek, entitled, "How Well Do We Pick Plant Locations." This article

> listed several reasons why companies select a plant location. However, vocational-technical education was not listed as a factor.

After reviewing other literature, it was found that many studies indicate a working relationship between vocational-technical schools and industry in preparing and upgrading a skilled labor force. Other studies relate to the criteria necessary for establishing a vocational or technical school in a community. No study directly answered the problem presented in this research proposal. Its uniqueness is that adequacy of vocational education has not been assessed as a factor which might, or might not, encourage a manufacturing industry to locate in a given community.

There is some support given to this factor in plant site selection, but the literature review does little to add depth. A major part of the information that applies to vocational and technical schools came from letters, returned by request, from consultants and engineers. These firms are instrumental in helping companies find new plant locations.

One or two mentions were made that vocational-technical training might be available in one area or another, in the event of a plant move, but on the whole, other factors were given more importance.

The trend seems to point to more emphasis being placed on vocational-technical education as a factor in plant site selection, but it isn't, by any means, at the top of the list.

PREFACE

Picking the best sites for the new plants is one of the toughest problems faced by many of the American companies today. A great variety of factors is entailed in locating each plant. The pitfalls are many--and so are the disadvantages resulting from choosing the wrong site. Therefore, the process of locating new plants is approached gingerly by many companies. In most instances, in fact, a new site is selected only after most thorough and careful research.[1]

FACTORS IN PLANT SITE SELECTION

While the basic factors that determine the location of a plant remain the same--markets, labor supply, transportation, fuel, raw materials, and adequate utilities--greater attention is being paid to such factors as:

1. Public attitude toward industry--particularly toward the type of industry the company represents.

2. The attitude of civic leaders and community officials toward industry, and the record of the local government with respect to the control and taxation of industry.

3. The labor force--not merely its size, but its composition, its attitude and its leadership.

4. The attitude of other manufacturers in the community toward new industry.

5. The status of community resources, (hospitals, schools, recreational facilities) and the probable future need for industrial support providing adequate resources.[2]

---

[1] Malcom C. Neuhoff. Techniques of Plant Location (National Industrial Conference Board, Inc., No.1) p. 4.

[2] Ibid., p. 3.

The following are the principal factors governing the selection of the plant community:

1. Labor supply
2. Labor cost (rates, fringe benefits, productivity)
3. Labor climate
4. Transportation facilities
5. Transportation cost and service
6. Proximity to markets and sources of supply
7. Community appearance and facilities
8. Community attitudes
9. Local government and taxation
10. Availability and cost of utilities
11. Availability of satisfactory site or building
12. Availability of financial aid for building construction[3]

SCHOOLS IN GENERAL

A search of the available literature turned up material relating to schools in general, not referring to vocational education facilities in particular. Some mention is made to technical schools and community or junior colleges. However, it is only minor in importance when placed in context with other factors for plant site selection.

> The best way to attract good industry to your town is not to lower taxes. It is to have good schools. Good schools attract good industry.[4]

---

[3] James H. Thompson, Methods of Plant Site Selection Available to Small Manufacturing Firms, (Morgantown, W. Va.: West Virginia University Bulletin, September, 1961) p. 43.

[4] Frank L. Whitney, How to Bring New Industry to Your Town, School Management, 5:37, November, 1961.

For new research facilities the quality of a district's schools is the single most important item in site selection.[5]

One item of major concern for industries looking for a new site is the availability and quality of schools.

The Austin Co. of Cleveland is continually collecting information about schools--pupil-teacher ratios, number of schools and their size, per pupil expenditure, and the percentage of the population comprised of high school graduates.[6]

> We also question local industrialists regarding their experience with and their opinion of the schools. If the presence of a vocational or technical school would be helpful to our client, we check with the director of such a school for information on its curriculum and with local manufacturers regarding their experience with its graduates.[7]
>
> Certain of our clients are particularly interested in the presence of a local community college offering technical courses.[8]

---

[5] Ibid.

[6] Robert A. Will, "Good Schools Attract Industry," NEA Journal, 54:28, March, 1965

[7] Ibid.

[8] Ibid.

Upgrading of employees through education is of concern to site seekers. Communities that lag behind in facing up to their educational problems will be increasingly at a disadvantage in attracting new industries.[9]

CASE OF GENERAL FOODS

> In General Foods' search for a plant site for consolidation of several food processing plants, the Fantus Company was retained. The Fantus report to GF covered three important topics in its site recommendations:
>
> 1. A review of the geographically variable cost factors influencing choice of location, especially the range of potential variations.
>
> 2. A delineation of the areas considered and the reasons for their selection.
>
> 3. A comparison of geographically variable operating costs in present plants and in the considered locations.[10]

Labor availability with the probable cost was listed next in locational factors, along with the problem of resolving the transportation problems.[11]

---

[9] Ibid.

[10] Edmund S. Whitman and W. James Schmidt, Plant Relocation, (New York: American Management Association, 1966), pp. 41-42.

[11] Ibid.

Analysis of construction costs for the new plant were taken into consideration. It was shown that construction costs were above the national average in New England and New York while Philadelphia and Wilmington had costs near the average. Cities further south had lower construction costs.[12]

Taxes in areas were carefully looked into. It was decided to avoid any county or community which taxed personal property, since the new plant would have large investments in machinery, equipment and inventory. The variations of state income and franchise taxes was such that in some areas there was a savings over old rates for the four old plants to a definite penalty.[13]

The consulting company also took a hard look at utility costs in various cities throughout the area under consideration and reported on capacities and the reliability of service. The conclusions submitted to the retaining company from Fantus are summed up in the following items: freight costs, locate close to existing suppliers, orientation to a general cargo port, wage and salary level, state, local, and personal property taxes, and construction costs.[14]

The winner for the site was Dover, Deleware because of the following unique advantages in addition to tax attraction:

1. Wage differentials have persisted for decades.
2. Most of the local industries, including International Latex (2100 employees) and the canning plants, enjoyed good labor-management relationships.

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[12] Ibid., p. 44.

[13] Ibid., p. 44

[14] Ibid., p. 45

3. Within a 30-mile radius the estimated supply of workers seeking industrial employment is 5,000 males and 3,000 females.

4. Living conditions are superior to those in typical cities in its class, reflecting the combined presence of the state offices, a college, and an Air Force installation.

5. Good freight transportation services are available, including an active line of the Pennsylvania Railroad.

6. Excellent sites served by rail and all utilities can be acquired at low cost.[15]

Some potential problems listed by the Fantus Company are as follows:

1. No skilled labor is available, and an extensive training program is envisioned.

2. Housing, though remarkably modern, is in short supply. Some GF aid may be necessary.

3. Upon completion of their 33,000-kilowatt municipal power plant, Dover officials cancelled a power supply contract with the Deleware Power & Light Company. Negotiations will be necessary to insure services by the utility company.

4. Some surplus capacity is available in the water system and sewage treatment plant. Plans for their expansion should be expedited to correspond with GF construction schedules.[16]

Perhaps the most important phase of the report had to do with the skilled-craft situation. The evidence suggested that there were a good many skilled workers, some of whom seemed to have the necessary qualifications

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[15] _Ibid_., pp. 45-46

[16] _Ibid_., p. 46

> to work at GF. Moreover, many of them planned to apply at the Jell-O Division plant. The feeling was that additional skilled labor could be recruited from surrounding counties. Of particular importance, also, was the finding that both the State Vocational Training Department and a local junior college had offered their services in helping the Jell-O people develop training programs.[17]

CASE OF THE NATIONAL SEATING AND DIMENSION COMPANY

Here is a case where improper planning as to the training of the labor supply forced a plant to shut down:

> There is probably no management decision more fraught with potential danger than selecting the proper site for a new plant--nor one in which the wrong decision can be more costly. The factors that must be weighed and analyzed are almost unbelievably complex, ranging all the way from proximity to markets and availability of labor to tax structure and soil conditions. Failure to take all the diverse factors into consideration before picking a site has brought misery to many a company.[18]

> In the case of the National Seating and Dimension Company, a furniture plant set up in Varney, West Virginia, many considerations were taken into effect for the removal of that plant to that community. But, eventually they found themselves losing money and had to shut down. The problem in this case was labor training costs.[19]

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[17] Ibid., p. 50

[18] "Site Selection: A Tough Job Gets Tougher," Dunn's Review 85: pt. 2, 118, March, 1965.

[19] Ibid., p. 119

> It is not that you can't train a coal miner to become a wood worker, one official said, we proved that you can, but it takes a hell of a lot more money than anyone thought it would.[20]

In consideration of the National Seating and Dimension Company, there was plenty of money provided to set this company up in that community. A sum of $220,000.00 to buy stock was set up by local investors, $75,000.00 in form of a loan from three banks, the Federal Government came through under the depressed areas program, low-cost loans at 4 percent were made available, Area Redevelopment Administration lent $679,000.00, and Small Business Administration $350,000.00. But, again, they violated the one cardinal rule of site selection--they failed to check out everything about the site, and to do it in depth.[21]

> It is pointed out that today as never before the site seeker operates in a selectors or buyers market. Never before has he been so strong. To many of the business men all of the claims that the communities make acts more of a repellant than a lure. They hear all about the diversified labor pool and ample school facilities and the rest, and find that the town is deserted, unemployment high and the schools only half filled, because the young workers have left to go to greener pastures. Furthermore, that diversified labor force has too often turned out to be a group of mill-workers who were oriented to only one industry, usually the one that pulled out of town in the last five or ten years.[22]

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[20] Ibid., p. 119.

[21] Ibid., p. 120

[22] Ibid., p. 121

Out of ten items listed as to how a community can help seek new industry, one of the items is listed as re-training; in other words, what a community can do to retrain people for employment for any plant coming into the community.[23]

In a Community for Economic Development, or CED study, one report shows how well five given areas did which were under study to develop programs incorporating these 10 elements. For example, the Uthica-Roma in the New York area is cited. Uthica, which had lost its important textile industry and substantial employment in the railroad industry, replaced them with basic employment in the manufacture of machine tools and electronics, the operation of a military air base and a military supply function relating to the base. Retraining, says the report, was an important part of this change. Training programs involved the cooperation of the company, local school officials, local employment service, and often the state departments of education, commerce and development, and labor.[24]

REPORTS FROM ENGINEERS AND CONSULTANTS

Over 55 letters were sent to consultants and engineers who are instrumental in advising companies in search of new plant locations. They were asked to report on the following question: Do you consider the proximity of a trade and technical institute when making recommendations to plant site seeking clients? The evaluated answers are outlined according to the following firms:

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[23] *Ibid.*, p. 204

[24] *Ibid.* p. 204

ARTHUR D. LITTLE, INC. REPORT

> The significance that vocational education has in specific location studies is indeed difficult to determine. ...we are concerned with this problem in several respects. On the one hand, we are involved in studies which attempt to assess the economic development potential or particular regions and in plant location studies for specific firms. On the other hand, we are becoming increasingly involved with various aspects of vocational/technical education from an institutional viewpoint. This has taken the form of preparing development programs for new comprehensive community colleges, measuring the impact and effectiveness of occupational education programs, and developing policy recommendations for the organization of educational institutions that would be most responsive to community needs.[25]

> On the basis of our experience,....literature pertaining to industrial site location gives relatively little consideration to the potential value to relocating or expanding firms of locally available labor force training programs. Reasons for this apparent lack of consideration vary. In my opinion, it is primarily due to the difficulty of quantifying the advantage gained in the face of more specific measures such as transportation cost and market

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[25] William E. Claggett, (letter on plant site location in relation to vocational education, Cambridge, Massachusetts: Arthur D. Little, Inc., January 30, 1967), p. 1.

data. Labor is typically analyzed in terms of availability, general skill levels that can be determined from readily available labor market data, prevailing wage rates in comparable industries, and characteristics of union activity. Depending on the type of firm, if all other things are equal, a locality's educational resources will become more of an important factor in location decisions. In many instances of course the location decision is not necessarily based on a purely rational analysis of the facts.[26]

Certainly, there are many instances where firms have chosen a particular area because of advantage offered by local vocational or occupational education programs. Unfortunately it is not always easy to identify the cases. Even with a questionnaire (which we use extensively as a research tool), one cannot always be sure that respondents are reporting the decision process that actually took place. Rationalization of the decision often comes after the fact.[27]

Regardless of the paucity of information in the literature, we do in fact assess the availability of local training programs in particular industrial locations or regional development studies. We attempt to weigh this factor in perspective of the others and the specific needs of different types of firms. For labor intensive firms, such as the electronic assembly industry and needle trades...., availability and cost. However, in more sparcely settled regions, such programs might very well head the list. We know from experience that skilled labor shortages can be a critical factor for small communities, not located near a major labor market, that hope to retain or attract industry.[28]

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[26] _Ibid._, pp. 1-2.

[27] _Ibid._, p. 2.

[28] _Ibid._, p. 2

> From an institutional viewpoint, a region's educational resources are certainly becoming more important to the region's economic vitality. We recently completed an extensive study for a new comprehensive community college in one of the growing suburbs of the Chicago metropolitan areas. The district has undergone very rapid industrial growth over the past five years. Primarily, this growth has been the result of a combination of a growing economy and the relocation of firms from the congested core of the metropolitan region. However, many of the firms in the district are now having second thoughts about their location decision because of difficulties in attracting skilled labor. Through interviews and questionnaires, we found most firms eagerly anticipating the advent of the new college and the opportunities it presented for specialized training programs as well as full one and two year occupational education programs. A number of key firms expressed willingness to participate in the process of developing relevant vocational and technical curricula.
>
> This is only one very sketchy example of a situation that is being repeated in many parts of the country. It is representative of the sustained growth in the demand for a labor pool with increasingly higher levels of vocational as well as technical skills. In this instance, it is our opinion that the new comprehensive community college will contribute to continued expansion of the district's industrial base.[29]

JENKINS, MERCHANT & NANKIVIL REPORT

> ....the availability of educational facilities in the general area is given much weight in the final selection of an industrial site. Unfortunately, few of the Midwest educational institutions actually provide adequate vocational training to meet the needs of any particular industrial requirements.[30]

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[29] *Ibid.*, pp. 2-3

[30] Carter Jenkins, (letter on plant site location in relation to vocational education, Springfield, Illinois: Jenkins, Merchant & Nankivil, January, 1967.)

NORRIS AND ELLIOTT, INC. REPORT

> We frequently are called upon to assist our clients in plant location or relocation. Among the many factors considered is the adequacy of educational facilities in the community.
>
> In evaluating the adequacy of the available labor supply we are of course interested in the skills they possess, their educational levels and their training capacities. This is very important in highly technical product lines. Many of our clients provide their own in-plant training in skills required in the plant. Others look to organizations* such as yours for such training.[31]
> (* Trade-Technical Institutes.)

ZURHEIDE-HERIMAN, INC. REPORT

> For some years now our firm has been engaged by its clients to design industrial plant facilities. This often requires locating a suitable site for a new manufacturing facility. In determining a suitable location we are always seeking a community that offers an adequate work force. This includes available people, proper experience, as well as facilities for training those young people who have had no opportunity to obtain the experience required. We have consistently given credit to the communities who recognize their responsibilities and who support educational facilities to provide training necessary.
>
> We are strong supporters of technical schools and junior colleges in our community.[32]

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[31] Ernest E. Roberts, (letter on plant site location in relation to vocational education, New York, N.Y.,: Norris and Elliott, Inc., February 9, 1967.)

[32] Charles H. Zurheide, (letter on plant site location, in relation to vocational education, St. Louis, Mo.: Zurheide-Heriman, Inc., January 23, 1967.)

A FORTUNE SURVEY ON LOCATING PLANTS, WAREHOUSES, LABORATORIES

Perhaps one of the most extensive surveys on plant locations done in recent years was the Fortune Survey of current locational trends, and of the major considerations which influence decisions of the top thousand U. S. industrial corporations in locating plants, warehouses, and laboratories.[33]

Objectives of this Study. This FORTUNE study of plant location was primarily designed for use by people who are concerned with attracting industry to their community or area, and by corporate officials who are responsible for their companies' locational activities.

The specific objectives of the study were to determine:

1. The basic production and marketing requirements affecting plant location.
2. The types and sources of plant location information utilized.
3. The extent of past and future U. S. and overseas construction of plants, warehouses and laboratories by the 1,000 largest U. S. industrial corporations.
4. Who is involved in the decision to locate new facilities?
5. The role played by advertising to induce industry to locate in a given area.

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[33] Fortune's Plant Location Survey, New York, N.Y. May, 1963

6. The extent to which the choice of a location by corporate executives is influenced by general environmental factors such as the political atmosphere, community attitudes toward industry, educational opportunities, the labor climate, and so on.
7. The relative attractiveness to manufacturers of specific geographical areas and states.

The underlying assumption in this study is that once the several best locations for the manufacturer of a given product have been "computed" and identified, the final choice is often made on the basis of the "image" of the several locations under consideration. Hence, this study attempts to measure these locational "images" and in so doing, to assess the attractiveness of any region or state as an industrial site location in the eyes of the corporate executives directly involved in plant location decisions.

Summary of Findings

1.) In this survey, respondents were first asked to check the basic requirements which a location must meet to be considered by their company. Even though there are wide variations from industry to industry, the basic requirements, when totaled for all respondents, were as follows: Availability of workers (54.0%); proximity to customers (52.6%); and proximity to raw materials, supplies and services (49.1%).

2.) Since many different locations will generally meet the production and marketing requirements cited above, environmental factors often play the crucial role in plant location decisions. Most frequently mentioned among environmental factors were: community attitude towards industry (95.4%); good employer--employee relations (90.6%); and productivity of workers (87.8%). It should be noted that these are "man-made factors subject to action by government, labor and management.

3.) Over 80% of the 1000 largest industrial corporations have located new plants, warehouses or laboratories in the past five years and over 75% plan to locate new facilities at new locations in the next five years. The East North Central and Middle South regions rate highest with companies considering U. S. plant locations in the next five years. More than half of the survey respondents say their companies are considering overseas plant locations in the next five years, with Europe the area most frequently mentioned.

4.) Selecting a new plant location clearly is a top management preogative, with 82% of the respondents mentioning the company president as the key decision maker.

5.) Utilities, banks, railroads and state governments - in that order - are the sources of information most relied upon by respondents. However, two out of five respondents stated that it was advisable to use "disinterested parties" (i.e., outside services such as engineering and plant location consultants) to secure specialized and/or impartial information on an area.

6.) Since companies planning a new location often keep their identity secret, areas offering plant sites must stand by with little knowledge of future purchasers of these sites. Therefore, they rely heavily on advertising to build interest and preference. Survey respondents named the Deep South and Middle South regions as doing the most effective plant location advertising.

7.) Slightly over half of the respondents stated that financial incentives were important to them when selecting a plant location, with tax concessions leading the list.

The Basic Requirements for Plant Location. Every manufacturer looking for a new plant location has a number of minimum requirements which must be met before a community is given consideration. Generally, these are cost and demand factors, such as a suitable labor force, transportation, a plentiful supply of water and so forth. In essence, these are natural advantages which a community either has or does not have to offer.

The three leading basic requirements listed by approximately half of the respondents were: Availability of workers, proximity to customers and proximity to raw materials.

The question asked was: If your company were looking for a new plant location, what would be the five basic requirements that would be most important?

RESPONSES	#	%*
Availability of workers	221	54.0
Proximity to customers (for transportation)	215	52.6
Proximity to raw materials, supplies and services	201	49.1
Ample area for future expansion	164	40.1
Availability of skilled labor	130	31.8
A growing regional market	126	30.8
Water supply	125	30.6
Inexpensive power and other utilities	124	30.3
Transportation by water	108	26.4
Proximity to customers (for fast delivery)	99	24.2
Availability of low cost labor	98	24.0
Cost of construction	97	23.7
Availability of technical or professional personnel	87	21.3
Transportation by truck	85	20.8
Cost of property	75	18.3
Size of town or city	55	13.4
Other	71	17.4
Base	409	
No Answer	7	

* Only items mentioned by 12% or more of the respondents are listed.

Attitudes of Manufacturers as a Factor in Plant Location. Even though cost and demand factors have been stressed by location theorists to explain the pattern of plant location, there is strong evidence in this survey and others that they do not fully account for the process of plant location. Other factors which are more a matter of impression, opinion or attitude than fact have an important influence on plant location. From the individual community's point of view, this is a distinct advantage since many of these factors (for example, the community's attitude toward industry) can be generated or created by civic action. There are many instances where a manufacturer's favorable impression of a community has resulted in a plant being located there instead of in a community with more of the natural advantages.

To get an indication of the importance of these attitudinal factors, manufacturers were asked: In locating a plant, some people feel that - in addition to the basic requirements listed - good community relations, a favorable industrial climate, good schools, adequate recreational facilities and other factors are extremely important. Do you agree?

RESPONSES		#	%
Yes		396	97.3
No		11	2.7
	Base	407	100.0
	No Answer	9	

The preponderance of positive answers indicates that there was strong agreement on a need for considering other than basic requirements for plant locations.

If "yes," which would be the five that would be most important if your company were looking for a new location?

The three most important factors were community attitude towards industry, good employer-employee relations in state and productivity of workers. Here certainly are some of the effective advertising appeals to influence manufacturers.

Importance Attached to Community Factors

RESPONSES	#	%
Community attitude toward industry	376	95.4
Good employer-employee relations in state	357	90.6
Productivity of workers	346	87.8
Political calm and stability	215	54.6
Educational opportunities	204	51.8
Local or state tax concessions	133	33.8
Availability of training facilities	77	19.5
Recreational opportunities	55	14.0
Local or state sponsored financing	53	13.5
Population	51	12.9
Good weather	40	10.2
Cultural opportunities	39	9.9
Base *	394	
No Answer	2	

* Respondents who answered "yes" to the previous question.

Attitudes Toward Specific Areas. The companies which indicated that they will be locating one or more facilities at a new location in the next five years were asked next: Which regions* do you think your company will probably consider?

The results are presented in the following two tables. The first table shows how survey respondents ranked each of the nine regions in order of their locational appeal ("most likely" locations; "second choice" locations; and "third choice" locations). The second table provides a "weighted" score or composite of rankings. This "weighted" score was calculated as follows: Each time a region was mentioned as "most likely" location it was assigned a weight of 3; each time a region was mentioned as "second choice", it was assigned a weight of 2; and each time a region was mentioned as "third choice", it was assigned a weight of 1.

On the basis of these weighted scores, the East North Central region (Ohio, Indiana, Illinois, Michigan and Wisconsin) ranked first as the region where respondents think their companies will be locating new facilities in the next five years. The Middle South region (Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Kentucky and Tennessee) ranked second, followed by the Deep South and the Pacific regions.

* For purposes of this survey, states were grouped into nine regions.

Attitudes Toward Specific Regions

RESPONSES	Most Likely	Second Choice	Third Choice
New England Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut	3.9%	3.3%	4.9%
Middle Atlantic New York, New Jersey, Pennsylvania	13.2	5.9	8.2
Middle South Deleware, Maryland, District of Columbia, Virginia, West Virginia North Carolina, South Carolina, Kentucky, Tennessee	22.4	16.4	7.6
Deep South Georgia, Florida, Alabama, Mississippi, Arkansas, Louisiana	21.0	11.8	9.2
East North Central Ohio, Indiana, Illinois, Michigan, Wisconsin	27.0	12.8	9.9
West North Central Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas	9.9	9.2	5.3
Southwest Oklahoma, Texas, New Mexico Arizona	14.8	9.5	8.6
Mountain Montana, Idaho, Wyoming, Colorado, Utah, Nevada	3.0	3.9	1.6
Pacific Washington, Oregon, California	18.4	8.6	*7.9
Base*	304		
No Answer	12		

NOTE: Percentages may add to more than 100.0 because of multiple answers.

Attitudes Toward Specific Regions
(On the basis of "weighted" scores)

RESPONSES	RANK ORDER	WEIGHTED PERCENT
East North Central	1	37.3
Middle South	2	33.5
Deep South	3	26.3
Pacific	4	21.6
Southwest	5	19.7
Middle Atlantic	6	18.0
West North Central	7	15.6
New England	8	5.5
Mountain	9	3.9

Attitudes Toward Specific States. Respondents were asked to indicate their preference for states within the nine regions that, to the best of their knowledge, would qualify on community factors shown on page 33. This ranked order was used to weight the responses for each state.

The weighted scores show the East North Central region first, with Indiana and Ohio as the first and second place and the Middle South region second with North Carolina the preferred location, followed by Virginia, South Carolina, etc.

Attitudes Toward Specific States
(Based on first choice)

RESPONSES	WEIGHTED RANKING OF REGIONS	WEIGHTED RANKING OF STATES WITHIN EACH REGION*
East North Central	1	
Indiana		1
Ohio		2
Illinois		3
Wisconsin		4
Michigan		5

RESPONSES	WEIGHTED RANKING OF REGIONS	WEIGHTED RANKING OF STATES WITHIN EACH REGION*
Middle South	2	
North Carolina		1
Virginia		2
South Carolina		3
Tennessee		4
Deleware		5
Maryland		6
West Virginia		7
Kentucky		8
District of Columbia		9
Deep South	3	
Florida		1
Mississippi		2
Alabama		3
Georgia		4
Louisiana		5
Arkansas		6
Middle Atlantic	4	
New Jersey		1
Pennsylvania		2
New York		3
Pacific	5	
California		1
Oregon		2
Washington		3
West North Central	6	
Missouri		1
Iowa		2
Nebraska		3
Kansas		4
Minnesota		5
North Dakota		6
South Dakota		7

RESPONSES	WEIGHTED RANKING OF REGIONS	WEIGHTED RANKING OF STATES WITHIN EACH REGION*
Southwest	7	
Texas		1
Oklahoma		2
Arizona		3
New Mexico		4
New England	8	
Connecticut		1
Massachusetts		2
Rhode Island		3
Maine		4
New Hampshire		5
Vermont		6
Mountain	9	
Colorado		1
Idaho		2
Montana		3
Nevada		4
Utah		5
Wyoming		6

* The weighting was arrived at in the following manner: The respondents were first asked to select, from the list of 12 community attributes, the 5 that would be most important to their company in selecting a plant location. The results of their choices is shown on page 33 (for example 95.4% of the respondents selected community attitude toward industry as one of the five most important attributes.) These percentage scores became the weighting factor for each of the twelve attributes.

Next, the respondents were asked to indicate the one state in the region they selected as their first choice for plant location that to them most satisfactorily met each of the 5 factors they selected as most important. Every response in favor of a state was multiplied by the weighting factor of the particular attribute associated with the state by the respondent and the resulting products were summed to arrive at the total score for the state. These total scores for each state provided the basis for the relative ranking shown above.

Sources of Information Utilized. There are numerous sources of information available to companies deciding on a new plant location. However, there are a few principal sources that are relied upon as having most of the basic information pertaining to a specific area. The question asked was: Have you been called on by representatives of state or local government agencies, Chambers of Commerce, Banks, Utilities, Railroads, etc. - for the purpose of inducing you to locate manufacturing facilities in their locality?

RESPONSES		#	%
Yes		362	90.3
No		39	9.7
	Base	401	
	No Answer	15	

More than 90% of the respondents have been solicited by plant location agencies of this type, and the sources considered most reliable were utilities, banks, railroads and state governments.

If "yes," which one of these organizations do you consider the most reliable source of information?

RESPONSES	#	%
Utilities	103	41.0
Banks	89	35.5
Railroads	61	24.3
State Governments & Industrial Commissions	53	21.1

RESPONSES	#	%
Chambers of Commerce	47	18.7
Local Governments	17	6.8
Real Estate Agents	7	2.8
Top Businessmen of Area	3	1.2
Non-Government Agencies	2	0.8
Contractors	2	0.8
None	12	4.8
Base*	251	
No Answer	111	

NOTE: Percentages may add to more than 100.0 because of multiple answers.

* Respondents who answered "yes" to the previous question.

Attitudes Toward Respondents' Home States. The opinions which respondents expressed about the states in which they have their legal residence* were by no means wholly favorable. When asked whether, relative to other states, there are major disadvantages in operating a plant in the state of their legal residence, 169 answered "yes," and 194 answered "no."

Those executives who answered "yes," complained most strongly about high taxes, excessive labor costs and on unfavorable government attitude. Below is a tabulation of the negative mentions in order of frequency of mention.

RESPONSES	#	%
Taxes	83	25.5
High Labor Costs	45	13.8
Unfavorable Government Attitude	37	11.4
Distance From Markets	33	10.2
Shortage of Labor	19	5.8
Poor Labor Relations	17	5.2
Distance from Raw Materials	12	3.7
Geographical Location	12	3.7
Transportation Costs	11	3.4
Costs in General	9	2.7
Unemployment Compensation Costs	8	2.5
Low Labor Productivity	6	1.8
Utility Costs	6	1.8
Construction Costs	3	0.9
Other	24	7.4
Base	325	100.0 [34]

DUN'S REVIEW--A PLANT SITE SELECTION SURVEY

Another extensive survey on plant site selections was contained in a report from Dun's Review. Two relevant questions and answers contained in the Dun's Review Report are included. Statistical comparisons are made and included in another section of this report.

> A survey among a sample of Dun's Review subscribers on the question of plant location or plant-site selection was completed in May 1963. This survey was conducted by mail, going to 1,513 subscribers, and 254 of them replied, giving a 17% return. Although this survey was conducted at the request of and designed by Batten, Barton, Durstine & Osborn for New York State specifically, and although most of the material is of a highly specific nature of interest entirely or mostly to this specific State Department of Commerce, the following points are of some general interest:

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[34] Fortune's Plant Location Survey, New York, N. Y. May, 1963.

1. The question was asked: "Have you ever been involved in choosing a plant-site location for your firm?" In answer to this question, 160 of the responding Dun's Review subscribers said Yes while 94 said No. Since the selection of a plant-site is a relatively rare industrial decision, the high percentage of Dun's Review subscribers in this sample who said they have been involved in such a decision, is quite impressive and indicative of the importance and activity of this audience in locating industrial plants.

2. The question was asked: "If you had to pin it down, what one requirement do you feel is most important in choosing plant-site for a factory?" Since the answer to this question was a "write-in," and since many respondents mentioned a number of factors, the following statistical tabulation of answers is not completely precise, nevertheless, it is indicative of the major interests of those seeking and involved in plant locations. The following answers are arranged in order of frequency of mention, and since many respondents mentioned more than one factor, there are a total of 446 mentions from the 254 respondents:

FACTOR		NO. MENTIONS	PERCENT
(1)	Labor Supply	111	43.7
(2)	Proximity to Markets	92	36.2
(3)	Accessibility to water, power, transportation, raw materials	88	34.6
(4)	Labor Laws	47	18.5
(5)	Taxes	20	7.9
(6)	Accessibility of site	19	7.5
(7)	Business Climate	16	6.3
(8)	Availability of Real Estate	16	6.3
(9)	Housing & Schools	4	5.5
(10)	Other	21	8.3
(11)	None	2	.8 [35]

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[35] Dun's Review--A Plant Site Selection Survey, New York State, May, 1963

Mr. Robert White, of the Valley National Bank of Phoenix, Arizona, responding to an inquiry for information related to manufacturing plants which have located in Arizona, drew these comparisons related to the Dun's Review report:

> Clearly, labor still ranks very high in importance in such considerations, as readily seen when you combine the high rank of labor supply and labor laws in this tabulation...at the same time, proximity to markets, good transportation, and such related factors as nearness to raw materials, water, and available power also rank extraordinarily high. While the other factors do not compare in importance with these major considerations, it must be kept in mind that we are talking here about a very major decision which can mean a vast amount to interested parties in the case of even one plant, so that this should not be interpreted to mean that other appeals such as good educational facilities, excellent business climate, a sound tax structure, or certainly the availability of good sites, may not be the paramount factor in the acquisition of a particular plant.
>
> One other interesting factor in this study is the difference between the preference of executives located east of the Mississippi from those located west of the Mississippi--in the above case, labor was the dominent factor with those located east of the Mississippi, while proximity to markets and the accessibility-transportation factors were dominant in the case of those located west of the Mississippi.[36]

DETERMINATION OF A NEW MANUFACTURING LOCATION

In a speech to the North Alabama Regional Planning Conference, Mr. Don S. Robb, Manager of the Real Estate Division of General Electric

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[36] Mr. Robert White, of the Valley National Bank of Phoenix, Arizona, (letter responding to inquiry for information related to manufacturing plants) Dun's Review Report, May, 1963.

Company, drew these comparisons in plant-site selection:

> What would interest General Electric in your town? What requirements does General Electric have which are closely related to those of the communities in which it lives? Let's list some of the basic common requirements and then consider them in more detail:
>
> 1. Cooperative action
> 2. Superior educational system
> 3. Good living conditions, and
> 4. Profitable enterprise
>
> 1. Cooperative Action - By this I mean, (a) working together without friction, and I'm sure many of you can cite examples of frictional jealousy and consideration of personal gain over that of the community; (b) equitable taxes - not free grants either to industry or to individuals and of sufficient amount to provide good public facilities; (c) equal opportunity to all segments of the population; (d) working climate where people want to improve and do their share and where industry wants to pay a fair wage for a fair day's work, and (e) a place where the people are willing to work for and pay for a progressive community.
>
> 2. Superior Educational System - This breaks down into several parts and presupposes good facilities and a better than average teaching staff so as to (a) provide adequate training for the skills required, both technical and non-technical. The facilities should include provision for technical teaching beyond the high school level and for teaching new skills when needed. This is particularly true today when the whole country is running out of available skilled people and the advantages, therefore, will rest in the ability to train additional workers; (b) provide good college preparatory training as an attraction to bring in the professional people required and to satisfy their concern for the education of their children; (c) also, where there are a considerable number of such design and research people involved, a college or university is often a requirement so as to

not only provide the right climate, but also to stimulate them and to provide in today's rapidly accelerating technology the opportunity to work for advanced degrees - which are almost mandatory.

3. Good Living Conditions - Again, both the town and the company are obviously interested in this to hold and attract people. It includes, (a) a friendly, enthusiastic community climate; (b) a good ethical and religious climate; (c) good libraries and other cultural opportunities; (d) adequate nearby recreational facilities; (e) good employment opportunities; (f) progressive stores and financial institutions; (g) good transportation facilities, not only in the town but also to the town.

4. Profitable Enterprise - This, to some extent, incorporates all the rest. All factors are needed to have long-term success, and long term success is the basic ingredient required to provide the previous three items. It is necessary for the company because a company cannot provide good, well-paid jobs unless it can successfully compete in the market place. But, it is just as necessary for all the citizens of the community and the community itself if there is any desire to grow.

Let me emphasize again the importance of leadership - leadership which exhibits the following traits:

Intelligent awareness of the needs of the community; the creative imagination to envision what the community might become in the future; encouragement of and participation in public discussions and debate about what should be done and how; lack of pettiness or corruption; and impatience at delays in getting on with the job of making the community a better place in which to live, work, play, rear families, and do business.

It appears that those communities which thrive through every change have economic vitality (they are good places in which to earn a living and run a business); cultural vitality (they are stimulating places in which to live); and municipal vitality (they have well managed municipal services and modern facilities).

These communities also have civic leadership -citizens who care about their community and take the initiative, in private and in public, in keeping their cities strong.

Any industry looking for a community in which to locate a plant favors a community that knows what an industry expects, that has taken, and is continuing to take, the necessary steps in promoting the progress of its existing industries and in encouraging new industries to locate in the area.

Now, let's get a little deeper into the planning. You are all conditioned today to hearing about the scientific approach to solving problems. We attempt to apply that technique to the plant location problem. Theoritically, there are a limited number of right locations for every plant and we can come fairly close to determining this today if we can eliminate the emotion and preconceived prejudices and actually determine the needs and requirements of the plant. Obviously, if we are to be competitive, we must develop a total cost of the product on a long-range basis which is as low as or lower than our competitors - both here and abroad.

First, as a start on the trail of the ideal community, our Marketing people determine for the particular product involved the total market and the center of the market - together with the probable cost per unit of sales of transporting finished stock to that point from various radii of say two hundred mile rings. Time after time, in various studies of our products, that comes out to be Western Ohio. But, this transportation cost may or may not be an important factor. For instance, the cost of moving a dollar of sales value of fluorescent ballasts is high and is an important factor in total cost. On the other hand, a month's production of manufactured diamonds can be carried in a suitcase, and, therefore, the cost of transportation is unimportant in this case. This factor plays such an important part in the delivered cost of certain products that some companies have found the cost is lower by going to the extreme of having regional plants near their customers.

Second, our Purchasing people likewise study transportation costs - considering the alternate sources for major items. For instance, if steel is a major component, there might be lower total cost if the plant was located in the steel production belt between Pittsburgh and Chicago. On the other hand, this might be compensated for by developing Birmingham, Alabama as an alternate source for certain kinds of steel. In other words, there can be many variables to be considered before the final lowest cost of transportation of materials and subcontracted items can be determined.

Third, the Manufacturing organization must determine the number of employees required to serve - not only today's market, but the future projected market - together with skills required and probable mix between male and female.

With a fix on transportation costs and a determination of the kind of labor force, we are then able to weigh the effect on final costs of (a) various community labor rates; (b) efficiency of labor; (c) taxes (real estate, franchise, income, sales, etc.); (d) other cost factors such as cost of land and construction, power, fuel, water, etc. Often times this changes the preconceived idea that the operating people start with.

Furthermore, some products have very special requirements. For instance, most chemical plants require large quantities of fresh water, gas and electric power, and therefore, definitely require a large river nearby as well as proximity to low cost power sources. Where this is the case, other factors become secondary but still can be important and there can be, of course, more than one town which has these facilities available.

Water transportation can be a primary requirement for other products and this special requirement will take precedence over any other item in the criteria. For instance, one component is now talking about a plant from which they can ship single units weighing eight hundred tons in the future.

When there is a high engineering content which requires a substantial staff, the most important factor can be educational institutions which give advanced degrees and an educational environment which attracts engineers and scientists. As I indicated before, a basic community requirement for any plant is a good school system for children of employees as well as good vocational school facilities for teaching new skills to prospective employees.

The size of the labor force will, in many cases, automatically rule out cities which would otherwise qualify. Our current guide line is that the plant should not require more than six per cent of the total metropolitan population, or fifteen per cent of the total work force, since it is not desirable to be too big a frog in the puddle for a number of obvious reasons. I think most of us would agree that one-industry towns usually do not create healthy situations. This means, conversely, that we should stay away from large cities with small plants since we may wish subsequently to use the larger cities for other large plants. (For instance, an available plant in a large city.) General Electric now has 152 plants in the U.S.A. and, therefore, this is becoming an increasingly serious problem. Furthermore, some communities have a surplus of available male employees where others have a surplus of female.

Having evaluated the above by careful research and planning, we finally come to the map in terms of advantageous communities of the right size. The area in which we are looking is probably now fairly restricted and we can think of desirable communities within that area in the qualitative terms we described earlier.

From consideration of these factors it is not usually too dificult to pinpoint the optimum community.

This pretty well covers the theory of the case and the basic data required. Perhaps our mechanics would be of interest.

First - we attempt to correlate all the data we can secure. This includes data supplied by chambers of commerce, railroads, and utility companies, as well as:

Published plant location statistics
U.S. Department of Labor statistics
Railway Guide
Editor and Publisher Market Guide
And, not least, our own Company Experience.

Second - we survey the most probable communities on the ground as personal observation must be made to supplement statistics. In this personal observation we try to verify what is happening in the town, what residents think of it, and what they have done to implement their hopes in the way of community improvements - not only physical, but also educational and cultural.

Subsequently, after the city which appears to come the closest to fitting the criteria has been determined, and only after that point, do we seriously consider sites. We have not yet had to abandon a community because of lack of available sites, but this may happen some day.

On the other hand, very often by walking the railroad rights-of-way and intensively studying topographic maps, we have located a site which the community itself had not identified as a possible plant location.

Now, to recap. Make your community one that is cooperative with a superior educational system and the best possible living conditions. Then encourage existing industries to grow and, at the same time, search for new industries that can successfully locate in your community and be competitive."[37]

WESTERN ELECTRIC LETTER

The following letter is included in this report as being indicative of the painstaking procedure which is followed by some of the larger manufacturing companies of today:

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[37] Mr. Don S. Robb, Manager of Real Estate Division of General Electric Company (from speech delivered at the North Alabama Regional Planning Conference), Decatur, Alabama, November 1967, pp. 1-8.

WESTERN ELECTRIC Manufacturing and Supply Unit of the Bell System
38th Avenue & West Indian School Road Phoenix, Arizona 85019

February 7, 1967
Address Mail to:
P.O. Box 13300
Phoenix, Arizona

MR. ERNEST H. DEAN
Research Director
Utah Trade Technical Institute
Box 1009
Provo, Utah 84601

Dear Mr. Dean:

In response to your letter relative to a study that you are making regarding criteria used in determining the location of a plantsite, we have enclosed two lists of factors which Western Electric uses. The sheet entitled, "Principal Factors and Plantsite Selection" is actually an abstract of the larger table and highlights what, in our opinion, are the important basic factors to be considered.[38]

Yours truly,

/s/ Victor C. Bond

VICTOR C. BOND
Department Chief
Personnel and Training

VCB/cjb

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[38] Victor C. Bond, Department Chief, Personnel and Training, Western Electric Manufacturing and Supply Unit of the Bell System (letter responding to Questionnaire on Implications of Vocational-Education for Plant Site Location), February 7, 1967.

PRINCIPAL FACTORS IN PLANT SITE SELECTION

- Size of Metropolitan Area
- Availability of Labor
- Labor Rates
- Labor Climate
    - Work Stoppages
    - Labor - Management Relations
- Taxes
- Educational Facilities
    - Local Schooling
    - Colleges
- Housing
- Plant Site
    - General Environment
    - Zoning
    - Highways
    - Rail Access
    - Water
    - Sewers
    - Price
- Pilot Plant - Availability on a Temporary Basis

SITE SURVEY REPORT

CITY

POPULATION	City	Metropolitan Area
1950		
1960		
Present		

CLIMATE	Average Temp.		Days	
	Max.	Min.	Over 90°	Below 32°
Temperature - Winter				
- Summer				
Air Conditioning Design Temp.	Wet Bulb		Dry Bulb	
Mean Annual Rainfall				

TOPOGRAPHY

Altitude - Business Area
- River Level - Normal
- River Level - Maximum

Character of Region

SOCIAL FACTORS

Education - (Age 25 or over)
Completed High School - (Percent)
Completed College - (Percent)
Housing-Median values - Owner Occupied - $
- Percent - Owner Occupied -

EMPLOYMENT - Latest Available Data As of ________________________

Manufacturing
Non-Manufacturing
Total
Manufacturing by Industries

AVAILABILITY OF LABOR

Bureau of Labor - Classification

Registered for Unemployment	Men	Women	Total
Skilled			
Semi-Skilled			
Unskilled			
Total			
Total Seeking Employment			
Comments			

TAXES

	City	County
Property Tax per $100 Assessment		
Assessment Ratio		
Corporation Taxes		

TAXES (Continued)	City	County
Earnings Tax		
Sales and Use Tax		
Industrial Income Tax		
Industrial Sales Tax		

PREVAILING WAGES - MANUFACTURING

	Per Hour		Per Week	
	Min.	Max.	Min.	Max.
Male - Skilled				
- Unskilled				
- All				
Female - Skilled				
- Unskilled				
- All				
Typical Occupations				

INDUSTRIAL CLIMATE

Work Stoppages - Percent time lost to total work time

1960	1961	1962	1963	1964	1965

Dominant Unions -
Labor Management Relations -
Comments -

MAJOR MANUFACTURING INDUSTRIES

(20 Largest)

Name	Product	Union	No. of Empls.

COLLEGES AND ADVANCED SCHOOLS

Name	Type	Enrollment

CULTURAL AND RECREATIONAL FACILITIES

Adult School
Orchestra
Library
Parks
Golf Clubs
Vacation Resorts

CITY GOVERNMENT

Type
Politics
Time in Office
Financial Condition

HOUSING

For Sale
For Lease

GRADE AND HIGH SCHOOLS

Extent of Overcrowding -
Plans for Additions -

UTILITIES

Type	Capacity		Consumptive
	Present	Proposed	% of Capacity
Power			
Water			
Gas			
Sewers			
Comments			

TRANSPORTATION

Railroads
Airlines
Trucking Companies
Highways - (Present and Future Plans, etc.)

HOTELS

SITES

General Description of Area
Site 1
Site 2
Site 3

MANUFACTURING TYPE BUILDINGS AVAILABLE FOR LEASE

CHAMBER OF COMMERCE

Address
Director of Chamber
Director of Industrial Development

STATE UNEMPLOYMENT OFFICE

Address
Manager

SUMMARY

Date of Survey:____________________
Survey Made by:____________________

Revised 8-9-66[39]

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[39] Principal Factors in Plant Site Selection (list of factors used by Western Electric in plant-site selection), Revised August 9, 1966.

SUMMARY

The factors important in plant site selection have been outlined as they are seen by companies and consultants in this field. Indications are that more future emphasis will be placed on vocational-technical training facilities as a factor in plant location.

While little has been written on the subject, there are those who realize the importance of a dual relationship between employers and occupational education. Some companies weigh training facilities quite carefully, while such training might not play a significant role for another. Technical occupations are prevalent in today's manufacturing industry, wherein those trained as technicians can find immediate and very excellent employment.

Many surveys indicate labor supply as being the number one factor considered in plant site selections. However, from the survey reports, little emphasis has been placed upon the importance of various kinds of educational programs which help to prepare the labor force for jobs known to exist in the manufacturing industry. One cannot draw from the literature, information which would designate whether consideration is given to kinds of labor supply, such as professional, technical, skilled, semi-skilled, etc.; also if vocational-technically trained labor supply is a primary or secondary consideration.

Similar references are made to education as a factor in plant site selection. The literature does not indicate the kinds of education which is considered. Perhaps these would make excellent research projects for someone to undertake.

Part of the search of literature was done prior to the approval of the project. Upon approval of the grant, a very concerted effort was made to search for additional information related to the project in all its aspects.

Efforts were made to determine if there were a positive or negative correlation between plant site selection and the presence, or absence, of a vocational-technical education program and/or school. The literature revealed that very little had been written upon the subject, and definitely no treatise was found which was based upon research, to prove a high or low correlation.

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PART IV

RESEARCH INFORMATION

Prior to reading this part of the report, the reader should familiarize himself with information pertinent to this section, which is located in the Appendix, namely:

a. A listing of plant site selection factors which are in more detail than their counterparts, which run through many of the tables.

b. A population table which has bearing upon almost all tables included in this part of the report.

Table Number 1 indicates the number of interviews and completed questionnaires made in the nine different manufacturing categories listed, together with the total sample.

Page 9 in the Introduction of this report, also has information relative to how the population was arrived at.

Table Number 2 through Table Number 14 relates to plant site selection factors considered by different kinds and sizes of manufacturing companies in each of the seven states covered in the survey.

Table Number 15 through Table Number 24 relates to vocational education as a factor in the selection process.

Table Number 25 through Table Number 28 indicates the importance of the proximity of the vocational school to the anticipated plant site.

Table Number 29 and Table Number 30 relates to plant site rejection because of a lack of vocational education.

Table Number 31 and Table Number 32 relates to vocational education and the expansion of existing manufacturing plants.

Table Number 33 compares kinds of schools conducting vocational education as to preference of the manufacturing industry.

Table Number 34 through Table Number 36 indicates alternate considerations made by the manufacturing industry in lieu of a vocational education program.

Table Number 37 through Table Number 40 relates to committments of vocational school people to conduct vocational education, and visits of the manufacturing industry to vocational schools.

Table Number 41 through Table Number 46 places importance upon brochures and other advertisements by vocational education in the selection process.

Table Number 47 through Table Number 49 compares various organizations and levels of government as aids in the selection process.

Running through the series of charts is a comparison between a number of personal interviews, which is indicated in the report as the Interviewee Group, and a number of returned questionnaires, indicated in the report as the Questionnaire Group.

TABLE NUMBER 1

CATEGORIES OF MANUFACTURING COMPANIES

CATEGORY NUMBER	CATEGORY DESCRIPTION	NUMBER OF INTERVIEWS	NUMBER OF QUESTIONNAIRES RETURNED	TOTAL INTERVIEWS AND QUESTIONNAIRES COMPLETED AND RETURNED
1	ELECTRONIC-ELECTRICAL AND REFRIGERATION	37	27	64
2	METAL FABRICATION AND PLATING	3	9	12
3	MACHINE SHOP PRODUCTS	15	1	16
4	FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	13	6	19
5	CLOTHING	7	9	16
6	PLASTICS-RUBBER PRODUCTS-SYNTHETICS-PAPER-MAPS	10	11	21
7	WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	11	12	23
8	MOBILE EQUIPMENT AND MACHINERY	13	13	26
9	HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	7	2	9
		116	90	206

QUESTION NUMBER 1

What factors are investigated by your company officials prior to selecting a plant site? Rank each factor as to importance, with Number 1 being most important, 2 next, etc.

INTERVIEW INFORMATION:

In approaching the company, the person who selected or had knowledge of the selection of their plant site or sites was requested to provide the answers. Each respondent was asked to list all factors which were considered in the selection process, and to rank them according to significance.

QUESTIONNAIRE INFORMATION: (NONE GIVEN)

TABLE NUMBER 2 EXPLANATION

There were 26 different considerations reported and ranked from 1 through 26 in this report, depending upon the number of times mentioned. The maximum indicated by any one respondent was 9 factors. Therefore, a weighted number was assigned to ranks, 1 through 9, Number 1 being assigned 9 points, Number 2, 8 points---Number 9, 1 point. The number of mentions then multiplied by the weighted number is recorded as the Weighted Score.

The comparative rank assignments were then made, listing the highest weighted score as Rank Number 1, with the Lowest weighted score being assigned Rank Number 26.

Manufacturing companies were grouped into 9 different categories.

A detailed listing of the considerations applicable to each factor is included in the Appendix.

TABLE NUMBER 2 ANALYSIS OF DATA (INTERVIEWEE GROUP)

The first six ranks, according to the weighted scores were:

1.	Labor Supply	449
2.	Available Buildings	332
3.	Market	330
4.	Ground Transportation	293
5.	Residence of Owners	283
6.	Land Availability	266

However, one can couple together two closely related factors and interpret a change of rnak, an example of which follows:

a. Labor Supply and Labor Relations
b. Ground and Air Transportation
c. Market and Equidistant from Market

If this were done, the ranks would change as follows:

1.	Labor and Labor Relations	512
2.	Market and Equidistant from Market	463
3.	Ground and Air Transportation	432
4.	Available Buildings	332
5.	Residence of Owners	283
6.	Land Availability	266

Vocational Education was ranked Number 15, with an 84 weighted score, which ranked almost in the middle of all factors designated.

Residence of Owners received the most first place responses, followed by Market and Available Buildings.

POPULATION TABLE NUMBER 2

NUMBER OF RESPONDENTS	116
NUMBER OF RESPONDENTS ANSWERING THIS QUESTION	116
PERCENTAGE OF RESPONDENTS ANSWERING THIS QUESTION	100%

TABLE NUMBER 2

COMPARATIVE RANK OF PLANT SITE SELECTION FACTORS

(INTERVIEWEE GROUP)

		NUMBER OF TIMES RATED						WEIGHTED	COMPARATIVE
SELECTION FACTOR	1st	2nd	3rd	4th	5th	6th	7th	SCORE	RANK
LABOR SUPPLY	7	17	17	14	8	1	1	449	1
AVAILABLE BUILDINGS	10	10	15	7	3	0	0	332	2
MARKET	13	15	4	7	4	2	0	330	3
GROUND TRANSPORTATION	2	11	15	9	4	2	0	293	4
RESIDENCE OF OWNERS	23	5	3	1	1	1	0	283	5
LAND AVAILABILITY	9	13	5	5	2	1	0	266	6
TAXES	5	2	9	2	1	2	0	149	7
ALLIED BUSINESS RELATIONS	8	4	4	1	1	0	1	146	8
AIR TRANSPORTATION	1	4	9	5	1	0	0	139	9
EQUIDISTANT FROM MARKET AREA	7	4	2	1	3	0	1	133	10
RELATIONSHIP TO FEDERAL BUSINESS	6	2	1	4	1	0	0	106	11
FINANCE	1	3	5	4	2	0	0	102	12
COMMUNITY SIZE AND ADVANTAGES	2	5	2	1	2	1	1	95	13
EDUCATION (COLLEGE TOWN)	2	2	2	3	3	1	2	90	14
VOCATIONAL EDUCATION	2	1	1	3	4	2	2	84	15

TABLE NUMBER 2 (CONT.)

COMPARATIVE RANK OF PLANT SITE SELECTION FACTORS

(INTERVIEWEE GROUP)

SELECTION FACTOR	NUMBER OF TIMES RATED 1st	2nd	3rd	4th	5th	6th	7th	WEIGHTED SCORE	COMPARATIVE RANK
COMMUNITY ATTITUDES	2	2	2	2	3	1	0	79	16
LABOR RELATIONS	1	2	1	2	3	1	0	63	17
RAW MATERIALS	6	0	0	0	0	0	0	54	18
UTILITIES	0	1	4	1	1	0	0	47	19
INDIAN TRIBAL COUNCIL HELP	4	1	0	0	0	0	0	44	20
CLIMATE	1	0	3	2	0	0	0	42	21
FOOT TRAFFIC AND EASE OF MARKETING	1	2	1	0	0	1	0	36	22
ADJACENT TO RETIRED AND HANDICAPPED PEOPLE	1	1	0	0	0	0	0	17	23
INCOME OF RESIDENTS	0	0	0	2	0	0	0	12	24
FEDERAL FUNDS	1	0	0	0	0	0	0	9	25
MOONLIGHTING OPERATIONS	1	0	0	0	0	0	0	9	26

TABLE NUMBER 3 EXPLANATION

The information obtained for this table was in response to the questionnaire relating to Question Number 1.

The same instrument used during the series of interviews was mailed to the respondents to execute. The combination of responses from the questionnaire is labled as the Questionnaire Group on this table.

The weighted scores and comparative ranks were obtained in the same manner as indicated in the explanation of Table Number 1, except that they applied to the Questionnaire Group.

TABLE NUMBER 3 ANALYSIS OF DATA

The first 6 factors determined by comparative rank and weighted scores are:

FACTOR	WEIGHTED SCORE	COMPARATIVE RANK
Labor Supply	358	1
Ground Transportation	234	2
Market	214	3
Available Land	199	4
Labor Relations	151	5
Community Size and Advantages	148	6

Considering the same coupling process applied to Table Number 1, the ranks and comparative scores would be:

FACTOR	WEIGHTED SCORE	COMPARATIVE RANK
Labor and Labor Relations	509	1
Ground and Air Transportation	371	2
Market and Equidistant from Market	319	3
Available Land	199	4
Community Size and Advantages	148	5
Education (Close to College)	133	6

Vocational Education received a rank of Number 16, with a weighted score of 69. A very slight difference was registered between the rank for vocational education, as obtained in the Interviewee Group and that obtained from the Questionnaire Group, one being ranked Number 15 and the other Number 16.

POPULATION TABLE NUMBER 3

NUMBER OF RESPONDENTS	90
NUMBER OF RESPONDENTS ANSWERING THIS QUESTION	90
PERCENTAGE OF RESPONDENTS ANSWERING THIS QUESTION	100%

TABLE NUMBER 3

COMPARATIVE RANK OF PLANT SITE SELECTION FACTORS

(QUESTIONNAIRE GROUP)

SELECTION FACTOR	NUMBER OF TIMES RATED 1st	2nd	3rd	4th	5th	6th	7th	WEIGHTED SCORE	COMPARATIVE RANK
LABOR SUPPLY	18	13	5	8	1	1	0	358	1
GROUND TRANSPORTATION	6	13	7	4	1	1	0	234	2
MARKET	4	10	11	2	1	1	0	214	3
AVAILABLE LAND	7	13	3	1	1	0	0	199	4
LABOR RELATIONS	6	8	3	2	0	0	0	151	5
COMMUNITY SIZE AND ADVANTAGES	4	3	10	1	1	1	1	148	6
AIR TRANSPORTATION	6	6	4	1	1	0	0	137	7
EDUCATION (COLLEGE TOWN)	3	1	12	2	1	0	0	133	8
ALLIED BUSINESS RELATIONS	4	8	4	0	0	0	0	128	9
RESIDENCE OF OWNER	4	4	7	1	0	0	0	123	10
CLIMATE	2	7	5	1	0	0	0	114	11
EQUIDISTANT FROM MARKET AREA	5	5	1	1	0	1	1	105	12
RELATIONSHIP TO FEDERAL GOVERNMENT	4	6	2	0	0	0	0	98	13
ADJACENT TO RETIRED AND HANDICAPPED PEOPLE	0	6	7	0	0	0	0	97	14
RECREATION	3	0	7	0	0	0	0	76	15
VOCATIONAL EDUCATION	0	1	2	4	1	3	2	69	16

TABLE NUMBER 4 EXPLANATION

The same 9 manufacturing categories and system of arriving at the weighted scores and comparative ranks were used as in Tables Number 1, 2, and 3. The major difference was that one type of manufacturing category was compared with another as to the selection factors considered in locating their plant sites.

POPULATION TABLE NUMBER 4

One hundred per cent of all respondents, from both the Questionnaire Group and the Interviewee Group, answered the question. (See Table Number 1 for a breakdown.)

TABLE NUMBER 4 ANALYSIS OF DATA

In comparing selection factors according to manufacturing categories, some similarities and some differences were evident.

Labor, Market, Transportation and Available Land were found in the top listings of most manufacturing categories.

Some differences were noted regarding selection factors between the Interviewee Group and the Questionnaire Group. One explanation of this was that, on the average, 2½ more factors per company were received through the series of interviews than were received on the completed questionnaires. Other differences are accountable in that the sample size might have been rather small in one instance or the other.

Vocational education was considered a plant site selection factor by 8 out of 9 manufacturing categories in the Interviewee Group, whereas only 4 out of 9 manufacturing categories in the Questionnaire Group rated vocational education as a factor in their plant site selection.

The relative position of vocational education is as follows:

	RANKINGS IN TERMS OF IMPORTANCE IN THE SELECTION PROCESS	
MANUFACTURING CATEGORY	INTERVIEWEE GROUP	QUESTIONNAIRE GROUP
ELECTRONIC-ELECTRICAL AND REFRIGERATION	14th	4th
METAL FABRICATION AND PLATING	11th	5th
MACHINE SHOP PRODUCTS	10th	NOT RATED
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	16th	NOT RATED
CLOTHING	9th	7th
PLASTICS-RUBBER PRODUCTS-SYNTHETICS-PAPER-MAPS	12th	NOT RATED
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	NOT RATED	NOT RATED
MOBILE EQUIPMENT AND MACHINERY	11th	12th
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	14th	NOT RATED

In comparing the top six rated factors mentioned by the nine manufacturing categories, it was found that:

Available Buildings were mentioned 9 times.

Labor Supply was mentioned 8 times.

Ground Transportation was mentioned 8 times.

Market was mentioned 6 times.

Residence of Owners was mentioned 5 times.

Available Land was mentioned 2 times.

Air Transportation was mentioned 2 times.

Finance was mentioned 2 times.

Climate was mentioned 2 times.

Education (College Town) was mentioned 2 times.

Allied Business Relations were mentioned 2 times.

Raw Materials were mentioned 1 time.

Utilities were mentioned 1 time.

Tribal Council Help was mentioned 1 time.

Federal Funds were mentioned 1 time.

Taxes were mentioned 1 time.

Labor Relations were mentioned 1 time.

TABLE NUMBER 4

PLANT SITE SELECTION FACTORS
(BY TYPE OF MANUFACTURING)
(COMBINATION OF INTERVIEWEE AND QUESTIONNAIR GROUPS)

		INTERVIEWEE GROUP		QUESTIONNAIRE GROUP	
TYPE OF MANUFACTURING	PLANT SITE SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK	WEIGHTED SCORE	COMPARATIVE RANK
ELECTRONIC-ELECTRICAL-REFRIGERATION	LABOR SUPPLY	167	1	132	1
	AVAILABLE LAND	124	2	29	9
	AIR TRANSPORTATION	110	3	8	19
	MARKET	106	4	123	2
	GROUND TRANSPORTATION	88	5	22	11
	AVAILABLE BUILDINGS	80	6	19	13
	RELATIONSHIP TO FEDERAL BUSINESS	64	7	NOT RATED	
	RESIDENCE OF OWNERS	59	8	16	15
	TAXES	58	9	38	7
	COMMUNITY SIZE AND ADVANTAGES	49	10	19	12
	ALLIED BUSINESS RELATIONS	49	10	16	14
	COMMUNITY ATTITUDES	48	12	NOT RATED	
	COLLEGE TOWN	33	13	39	5 *
	VOCATIONAL-TECHNICAL EDUCATION	32	14	43	4 *

* Some respondents failed to make a differentiation between educational institutions.

TABLE NUMBER 4 (CONT.)

PLANT SITE SELECTION FACTORS
(BY TYPE OF MANUFACTURING)

(COMBINATION OF INTERVIEWEE AND QUESTIONNAIRE GROUPS)

		INTERVIEWEE GROUP		QUESTIONNAIRE GROUP	
YPE OF MANUFACTURING	PLANT SITE SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK	WEIGHTED SCORE	COMPARATIVE RANK
LECTRONIC-ELECTRICAL ND REFRIGERATION CONTINUED)	CLIMATE	13	17	NOT RATED	
	TRAFFIC	NOT RATED		31	6
	LABOR RELATIONS	14	16	24	9
	ADEQUATE FINANCE	8	18	16	13
	AVAILABLE RAW MATERIALS	NOT RATED		15	16
	TRIBAL COUNCIL HELP	18	15	9	17
	INCOME OF RESIDENTS	NOT RATED		9	17
	RECREATIONAL ACTIVITIES	8	18	7	19
	MOONLIGHTING OPERATIONS	NOT RATED		5	20

TABLE NUMBER 4 (CONT.) PLANT SITE SELECTION FACTORS
(BY TYPE OF MANUFACTURING)

		INTERVIEWEE GROUP		QUESTIONNAIRE GROUP	
YPE OF MANUFACTURING	PLANT SITE SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK	WEIGHTED SCORE	COMPARATIVE RANK
ETAL FABRICATION AND PLATING	GROUND TRANSPORTATION	17	1	23	2
	MARKET	17	1	18	3
	FINANCE	8	3	5	12
	CLIMATE	7	4	5	12
	AIR TRANSPORTATION	7	4	7	10
	AVAILABLE BUILDINGS	7	4	NOT RATED	
	LABOR SUPPLY	7	4	38	1
	UTILITIES	6	8	NOT RATED	
	LABOR RELATIONS	5	9	6	11
	TAXES	4	10	NOT RATED	
	VOCATIONAL-TECHNICAL EDUCATION	3	11	14	5
	AVAILABLE LAND	NOT RATED		16	4
	INCOME OF RESIDENTS	NOT RATED		14	5
	RAW MATERIALS	NOT RATED		14	5
	EQUIDISTANT FROM MARKET AREA	NOT RATED		11	8
	RESIDENCE OF OWNERS	NOT RATED		8	9
	COMMUNITY SIZE AND ADVANTAGES	NOT RATED		4	14
	TRAFFIC	NOT RATED		4	14

TABLE NUMBER 4 (CONT.) PLANT SITE SELECTION FACTORS
(BY TYPE OF MANUFACTURING)

		INTERVIEWEE GROUP		QUESTIONNAIRE GROUP	
TYPE OF MANUFACTURING	PLANT SITE SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK	WEIGHTED SCORE	COMPARATIVE RANK
MACHINE SHOP PRODUCTS	MARKET	69	1	7	2
	LABOR SUPPLY	56	2	7	2
	RESIDENCE OF OWNERS	52	3	7	2
	AVAILABLE BUILDINGS	38	4	NOT RATED	
	ALLIED BUSINESS RELATIONS	37	5	7	2
	GROUND TRANSPORTATION	29	6	7	2
	AVAILABLE LAND	29	6	8	1
	FINANCE	21	8	NOT RATED	
	EQUIDISTANT FROM MARKET AREA	17	9	NOT RATED	
	VOCATIONAL-TECHNICAL EDUCATION	15	10	NOT RATED	
	LABOR RELATIONS	9	11	7	2
	COLLEGE TOWN	7	12	7	2
	COMMUNITY SIZE AND ADVANTAGES	6	13	7	2
	INCOME OF RESIDENTS	6	13	NOT RATED	
	COMMUNITY ATTITUDES	5	15	NOT RATED	
	TAXES	4	16	NOT RATED	
	ADJACENT TO RETIRED AND HANDICAPPED PEOPLE	NOT RATED		7	2
	CLIMATE	NOT RATED		7	2
	TRANSPORTATION	NOT RATED		7	2
	RELATIONSHIP TO FEDERAL BUSINESS	NOT RATED		7	2

TABLE NUMBER 4 (CONT.) PLANT SITE SELECTION FACTORS
(BY TYPE OF MANUFACTURING)

		INTERVIEWEE GROUP		QUESTIONNAIRE GROUP	
TYPE OF MANUFACTURING	PLANT SITE SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK	WEIGHTED SCORE	COMPARATIVE RANK
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	MARKET	65	1	49	2
	LABOR SUPPLY	55	2	35	4
	GROUND TRANSPORTATION	43	3	39	3
	RAW MATERIALS	36	4	17	6
	UTILITIES	34	5	17	6
	AVAILABLE BUILDINGS	34	5	NOT RATED	
	AVAILABLE LAND	30	7	62	1
	RESIDENCE OF OWNER	27	8	NOT RATED	
	TAXES	20	9	NOT RATED	
	FINANCE	12	10	NOT RATED	
	EQUIDISTANT FROM MARKET AREA	11	11	8	8
	FOOT TRAFFIC AND EASE OF MARKETING	9	12	NOT RATED	
	INCOME OF RESIDENTS	6	13	26	5
	COMMUNITY ATTITUDES	6	13	NOT RATED	
	COMMUNITY SIZE AND ADVANTAGES	5	15	NOT RATED	
	VOCATIONAL-TECHNICAL EDUCATION	4	16	NOT RATED	
	LABOR RELATIONS	4	16	NOT RATED	
	POLLUTION, WATER, ETC.	NOT RATED		8	8

TABLE NUMBER 4 (CONT.) PLANT SITE SELECTION FACTORS
(BY TYPE OF MANUFACTURING)

		INTERVIEWEE GROUP		QUESTIONNAIRE GROUP	
YPE OF MANUFACTURING	PLANT SITE SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK	WEIGHTED SCORE	COMPARATIVE RANK
LOTHING	LABOR SUPPLY	36	1	42	7
	AVAILABLE BUILDINGS	24	2	NOT RATED	
	RESIDENCE OF OWNER	23	3	37	12
	TAXES	22	4	NOT RATED	
	LABOR RELATIONS	13	5	43	5
	CLIMATE	13	5	49	2
	AIR TRANSPORTATION	13	5	49	2
	GROUND TRANSPORTATION	13	5	50	1
	VOCATIONAL-TECHNICAL EDUCATION	9	9	42	7
	EQUIDISTANT FROM MARKET AREA	8	10	NOT RATED	
	AVAILABLE LAND	4	11	NOT RATED	
	COMMUNITY SIZE AND ADVANTAGES	NOT RATED		44	4
	RELATIONSHIP TO FEDERAL BUSINESS	NOT RATED		43	5
	MARKET	NOT RATED		41	9
	ADJACENT TO RETIRED AND HANDICAPPED PEOPLE	NOT RATED		41	9
	ALLIED BUSINESS RELATIONS	NOT RATED		40	11
	COLLEGE TOWN	NOT RATED		35	13

TABLE NUMBER 4 (CONT.) PLANT SITE SELECTION FACTORS
(BY TYPE OF MANUFACTURING)

		INTERVIEWEE GROUP		QUESTIONNAIRE GROUP	
TYPE OF MANUFACTURING	PLANT SITE SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK	WEIGHTED SCORE	COMPARATIVE RANK
PLASTICS-RUBBER PRODUCTS-SYNTHETICS-PAPER-MAPS	AVAILABLE BUILDINGS	38	1	NOT RATED	
	ALLIED BUSINESS RELATIONS	35	2	17	2
	LABOR SUPPLY	30	3	21	1
	MARKET	28	4	6	14
	GROUND TRANSPORTATION	24	5	15	3
	COLLEGE TOWN	22	6	7	12
	COMMUNITY SIZE AND ADVANTAGES	21	7	6	14
	EQUIDISTANT FROM MARKET AREA	21	7	8	9
	RESIDENCE OF OWNER	18	9	6	12
	AVAILABLE LAND	17	10	15	3
	TAXES	15	11	NOT RATED	
	FINANCE	13	12	9	6
	VOCATIONAL-TECHNICAL EDUCATION	13	12	NOT RATED	
	FOOT TRAFFIC AND EASE OF MARKETING	12	14	NOT RATED	
	COMMUNITY ATTITUDES	9	15	NOT RATED	
	RELATIONSHIP TO FEDERAL BUSINESS	8	16	NOT RATED	
	LABOR RELATIONS	NOT RATED		9	6
	INDIAN TRIBAL COUNCIL HELP	NOT RATED		12	5

TABLE NUMBER 4 (CONT.) PLANT SITE SELECTION FACTORS
(BY TYPE OF MANUFACTURING)

		INTERVIEWEE GROUP		QUESTIONNAIRE GROUP	
YPE OF MANUFACTURING	PLANT SITE SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK	WEIGHTED SCORE	COMPARATIVE RANK
LASTICS-RUBBER RODUCTS-SYNTHETICS-APER-MAPS (CONTINUED)	RECREATION	NOT RATED		9	6
	CLIMATE	NOT RATED		8	9
	INCOME OF RESIDENTS	NOT RATED		8	9
	AIR TRANSPORTATION	NOT RATED		7	12
WOOD PRODUCTS-ONSTRUCTION RODUCTS	AVAILABLE BUILDINGS	52	1	9	8
	RESIDENCE OF OWNER	43	2	NOT RATED	
	GROUND TRANSPORTATION	41	3	28	2
	INDIAN TRIBAL COUNCIL HELP	26	4	NOT RATED	
	LABOR SUPPLY	23	5	17	4
	FEDERAL FUNDS	18	6	NOT RATED	
	EQUIDISTANT FROM MARKET AREA	15	7	NOT RATED	
	AVAILABLE LAND	13	8	21	3
	TAXES	9	9	NOT RATED	
	MOONLIGHTING OPERATIONS	9	9	15	6
	RELATIONSHIP TO FEDERAL BUSINESS	9	9	NOT RATED	
	AVAILABLE RAW MATERIALS	9	9	6	11
	FOOT TRAFFIC AND EASE OF MARKETING	7	13	NOT RATED	
	ALLIED BUSINESS RELATIONS	6	14	NOT RATED	

TABLE NUMBER 4 (CONT.) PLANT SITE SELECTION FACTORS
(BY TYPE OF MANUFACTURING)

		INTERVIEWEE GROUP		QUESTIONNAIRE GROUP	
TYPE OF MANUFACTURING	PLANT SITE SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK	WEIGHTED SCORE	COMPARATIVE RANK
WOOD PRODUCTS-CONSTRUCTION PRODUCTS (CONTINUED)	FINANCE	5	15	9	8
	POLLUTION, WATER, ETC.	NOT RATED		15	7
	VOCATIONAL-TECHNICAL EDUCATION	NOT RATED		NOT RATED	
	COMMUNITY ATTITUDES	NOT RATED		40	1
	RECREATION	NOT RATED		16	5
	ADJACENT TO RETIRED AND HANDICAPPED PEOPLE	NOT RATED		8	10
	LABOR RELATIONS	NOT RATED		6	11
	COMMUNITY SIZE AND ADVANTAGES	NOT RATED		5	13
	MARKET	NOT RATED		4	14
MOBILE EQUIPMENT AND MACHINERY	LABOR SUPPLY	57	1	57	2
	AVAILABLE LAND	44	2	48	6
	AVAILABLE BUILDINGS	38	3	NOT RATED	
	GROUND TRANSPORTATION	28	4	50	3
	COLLEGE TOWN	22	5	45	10
	RESIDENCE OF OWNER	18	6	49	4
	MARKET	17	7	44	12
	TAXES	16	8	NOT RATED	
	FINANCE	15	9	NOT RATED	

TABLE NUMBER 4 (CONT.) PLANT SITE SELECTION FACTORS
(BY TYPE OF MANUFACTURING)

		INTERVIEWEE GROUP		QUESTIONNAIRE GROUP	
E OF MANUFACTURING	PLANT SITE SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK	WEIGHTED SCORE	COMPARATIVE RANK
ILE EQUIPMENT MACHINERY NTINUED)	RELATIONSHIP TO FEDERAL BUSINESS	15	9	48	6
	VOCATIONAL-TECHNICAL EDUCATION	13	11	44	12
	EQUIDISTANT FROM MARKET AREA	11	12	NOT RATED	
	COMMUNITY ATTITUDES	11	12	NOT RATED	
	ALLIED BUSINESS RELATIONS	9	14	48	6
	RAW MATERIALS	9	14	NOT RATED	
	LABOR RELATIONS	6	16	48	6
	AIR TRANSPORTATION	NOT RATED		60	1
	COMMUNITY SIZE AND ADVANTAGES	NOT RATED		49	4
	CLIMATE	NOT RATED		45	10
	RECREATION	NOT RATED		44	12
	ADJACENT TO RETIRED AND HANDICAPPED PEOPLE	NOT RATED		43	15
LTH EQUIPMENT SUPPLIES-JEWELRY- BY AND RECREATIONAL IPMENT AND SUPPLIES	RESIDENCE OF OWNER	44	1	NOT RATED	
	MARKET	23	2	NOT RATED	
	AVAILABLE BUILDINGS	21	3	NOT RATED	
	FINANCE	20	4	NOT RATED	
	LABOR SUPPLY	20	4	9	1

TABLE NUMBER 4 (CONT.) PLANT SITE SELECTION FACTORS
(BY TYPE OF MANUFACTURING)

		INTERVIEWEE GROUP		QUESTIONNAIRE GROUP	
TYPE OF MANUFACTURING	PLANT SITE SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK	WEIGHTED SCORE	COMPARATIVE RANK
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES (CONTINUED)	GROUND TRANSPORTATION	18	6	NOT RATED	
	ADJACENT TO RETIRED AND HANDICAPPED PEOPLE	17	7	NOT RATED	
	AVAILABLE LAND	9	8	NOT RATED	
	CLIMATE	9	8	NOT RATED	
	AIR TRANSPORTATION	9	8	NOT RATED	
	FOOT TRAFFIC AND EASE OF MARKETING	8	11	NOT RATED	
	LABOR RELATIONS	7	12	8	2
	ALLIED BUSINESS RELATIONS	7	12	NOT RATED	
	COLLEGE TOWN	4	14	NOT RATED	
	VOCATIONAL-TECHNICAL EDUCATION	4	14	NOT RATED	
	COMMUNITY SIZE AND ADVANTAGES	NOT RATED		7	3

TABLE NUMBER 5 EXPLANATION

The basis for information contained in this table was obtained from answers to Question Number 1:

What factors are investigated by your company officials prior to selecting a plant site? Rank each factor as to importance, with Number 1 being most important, 2 next, etc.

In this table, responses from both the Questionnaire Group and the Interviewee Group have been combined. The same method of arriving at the weighted score and comparative rank, as has been used in Tables Number 2 through 4, has been used in this table. This table relates to all companies who employ from 1-100 workers.

POPULATION TABLE NUMBER 5

The number of respondents were comprised of 161 companies, and all answered the question.

TABLE NUMBER 5 ANALYSIS OF DATA

Small manufacturing companies, when combined into one grouping, consider the following six factors as being most important in the selection process:

FACTOR	WEIGHTED SCORE	COMPARATIVE RANK
Labor Supply	570	1
Market	433	2
Available Buildings	352	3
Ground Transportation	345	4
Residence of Owners	281	5
Available Land	220	6

When considered by coupling closely related factors, the top six would be:

FACTOR	WEIGHTED SCORE	COMPARATIVE RANK
Labor and Labor Relations	647	1
Market and Equidistant to Market	632	2
Available Buildings and Available Land	572	3
Ground and Air Transportation	481	4
Residence of Owners	281	5
Taxes	210	6

Vocational Education ranked Number 12, with a weighted score of 125.

TABLE NUMBER 5

PLANT SITE SELECTION FACTORS CONSIDERED BY SMALL MANUFACTURING COMPANIES

(1 to 100 Employees)

SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK
LABOR SUPPLY	570	1
MARKET	433	2
AVAILABLE BUILDINGS	352	3
GROUND TRANSPORTATION	345	4
RESIDENCE OF OWNERS	281	5
AVAILABILITY OF LAND	220	6
TAXES	210	7
EQUIDISTANT TO MARKET	199	8
ALLIED BUSINESS RELATIONSHIPS	178	9
AVAILABLE RAW MATERIALS	157	10
AIR TRANSPORTATION	136	11
EDUCATION (VOCATIONAL AND/OR TECHNICAL)	125	12
COMMUNITY SIZE AND ADVANTAGES	95	13
ADEQUATE FINANCE	88	14
TRAFFIC	86	15
COMMUNITY ATTITUDES	85	16
EDUCATION (COLLEGE TOWN)	83	17
LABOR RELATIONS	77	18

TABLE NUMBER 6 EXPLANATION

Table Number 6 was compiled like Table Number 5, except instead of relating to manufacturing companies who employ from 1-100 employees, it considers companies who employ from 101-1000 employees.

POPULATION TABLE NUMBER 6

There were 38 respondents, and all answered this question.

TABLE NUMBER 6 ANALYSIS OF DATA

Considered as the six top rated factors are:

FACTOR	WEIGHTED SCORE	COMPARATIVE RANK
Labor Supply	242	1
Ground Transportation	129	2
Availability of Land	73	3
Market	69	4
Taxes	67	5
Available Buildings	61	6

When previous combinations are applied, the rankings follow:

FACTOR	WEIGHTED SCORE	COMPARATIVE RANK
Labor Supply and Labor Relations	302	1
Available Land and Buildings	134	2
Air and Ground Transportation	129	3
Market and Equidistant to Market	127	4
Taxes	67	5
Residence of Owners	55	6

Vocational Education ranked Number 11, with a weighted score of 48.

TABLE NUMBER 6

PLANT SITE SELECTION FACTORS CONSIDERED BY MEDIUM SIZED MANUFACTURING COMPANIES

(101 to 1000 Employees)

SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK
LABOR SUPPLY	242	1
GROUND TRANSPORTATION	129	2
AVAILABILITY OF LAND	73	3
MARKET	69	4
TAXES	67	5
AVAILABLE BUILDINGS	61	6
LABOR RELATIONS	60	7
EQUIDISTANT TO MARKET	58	8
RESIDENCE OF OWNERS	55	9
EDUCATION (COLLEGE TOWN)	50	10
EDUCATION (VOCATIONAL AND/OR TECHNICAL)	48	11
UTILITIES	42	12
POLLUTION, ETC.	39	13
AVAILABLE RAW MATERIALS	39	13
RELATIONSHIP TO FEDERAL BUSINESS	39	13
ADEQUATE FINANCE	37	16

TABLE NUMBER 7 EXPLANATION

Information contained in this table was arrived at in the same manner as information in Table Number 5 and Table Number 6, except that the companies employed over 1000 employees.

POPULATION TABLE NUMBER 7

There were 7 respondents, and all answered the question.

TABLE NUMBER 7 ANALYSIS OF DATA

When the coupling process employed in the previous tables is applied, the six top rated factors are:

FACTOR	WEIGHTED SCORE	COMPARATIVE RANK
Market and Equidistant to Market	51	1
Ground and Air Transportation	41	2
Labor and Labor Relations	31	3
Available Land and Buildings	24	4
Community Attitudes	21	5
Taxes	18	6

Vocational Education ranked Number 10, with a weighted score of 13.

TABLE NUMBER 7

PLANT SITE SELECTION FACTORS CONSIDERED BY LARGE MANUFACTURING COMPANIES

(Over 1000 Employees)

SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK
LABOR SUPPLY	31	1
EQUIDISTANT TO MARKET	26	2
MARKET	25	3
AVAILABILITY OF LAND	24	4
AIR TRANSPORTATION	24	4
COMMUNITY ATTITUDES	21	6
TAXES	18	7
GROUND TRANSPORTATION	17	8
EDUCATION (COLLEGE TOWN)	15	9
EDUCATION (VOCATIONAL AND/OR TECHNICAL)	13	10
COMMUNITY SIZE AND ADVANTAGES	12	11

TABLES NUMBER 8 THROUGH 14 EXPLANATION

Weighted scores, ranks, and selection factors were arrived at in the same manner as in Tables Number 9 through 7.

Table Number 8 relates to all companies from Colorado who were interviewed or who returned completed questionnaires. Tables Number 9 through 14 do likewise for each of the other states of New Mexico, Arizona, Nevada, Idaho, Utah, and Wyoming. (See Appendix for population figures.)

TABLES NUMBER 8 THROUGH 14 ANALYSIS OF DATA

In analysing the data on Tables Number 8 through 14, one can make the following comparisons:

1. A comparison of the six top rated factors by States
2. A comparison of the six top rated factors by states when the coupling process used in Tables Number 2 through 7 is employed.
3. A determination of the number of times the first six factors are mentioned in the combination of states.
4. A determination of the number of times the first six factors are mentioned for the combination of states when the coupling process is employed.
5. A comparison of the relative rankings of vocational education.

The six factors compared are:

ATE	FACTOR	WEIGHTED SCORE	COMPARATIVE RANK	FACTOR (COUPLED)	WEIGHTED SCORE	COMPARATIVE RANK
OLORADO	Labor Supply	249	1	Labor Supply and Labor Relations	292	1
	Market	192	2	Market and Equidistant to Market	289	2
	Ground Transportation	148	3	Ground and Air Transportation	229	3
	Available Land	108	4	Available Buildings and Land	204	4
	Equidistant to Market	97	5	Vocational Education	85	5
	Available Buildings	96	6	Residence of Owner	57	6
EW MEXICO	Available Buildings	136	1	Available Buildings and Land	170	1
	Residence of Owners	132	2	Residence of Owners	132	2
	Market	84	3	Market and Equidistant to Market	107	3
				Air and Ground Transportation	107	3
	Labor Supply	69	4			
	Ground Transportation	59	5	Labor Supply and Labor Relations	77	5
	Relationship to Federal Business	57	6	Relationship to Federal Business	57	6
RIZONA	Labor Supply	134	1	Labor Supply and Labor Relations	158	1
	Available Land	99	2	Market and Equidistant to Market	152	2
	Market	88	3	Available Buildings and Land	149	3
	Residence of Owners	69	4	Air and Ground Transportation	105	4
	Air Transportation	68	5	Residence of Owner	69	5
	Equidistant to Market	64	6	Allied Business Rel.	45	6

TE	FACTOR	WEIGHTED SCORE	COMPARATIVE RANK	FACTOR (COUPLED)	WEIGHTED SCORE	COMPARATIVE RANK
ADA	Ground Transportation	89	1	Air and Ground Transportation	124	1
	Taxes	86	2	Taxes	86	2
	Labor Supply	59	3	Labor Supply and Labor Relations	75	3
	Equidistant to Market	43	4	Market and Equidistant to Market	73	4
	Community Size and Advantages	38	5	Community Size and Advantages	38	5
	Air Transportation	35	6	Available Buildings and Land	34	6
AHO	Raw Materials	33	1	Raw Materials	33	1
	Utilities	22	2	Utilities	22	2
	Market	14	3	Available Buildings and Land	21	3
	Ground Transportation	13	4	Market and Equidistant to Market	14	4
	Labor Supply	12	5	Air and Ground Transportation	13	5
	Available Land	12	6	Labor Supply	12	6
AH	Labor Supply	251	1	Labor Supply and Labor Relations	283	1
	Available Buildings	93	2	Market and Equidistant to Market	128	2
	Ground Transportation	91	3	Available Buildings and Land	122	3
	Taxes	91	3	Air and Ground Transportation	91	4
	Market	81	5	Taxes	91	4
	Raw Materials	74	6	Raw Materials	74	6

ATE	FACTOR	WEIGHTED SCORE	COMPARATIVE RANK	FACTOR (COUPLED)	WEIGHTED SCORE	COMPARATIVE RANK
OMING	Raw Materials	52	1	Raw Materials	52	1
	Ground Transportation	46	2	Ground and Air Transportation	46	2
	Market	38	3	Labor Supply and Labor Relations	46	2
	Labor Supply	35	4	Market	38	4
	Utilities	33	5	Utilities	33	5
	Finance	17	6	Finance	17	6

Another comparison relates to the number of times mentioned in the first six rankings, including all respondents:

Labor Supply	7*
Market	6
Ground Transportation	6
Raw Materials	3
Available Land	3
Available Buildings	3
Equidistant to Market	3
Utilities	2
Taxes	2
Residence of Owners	2
Air Transportation	2
Relationship to Federal Business	1
Community Size and Advantages	1
Finance	1

(BY COUPLING)

Labor Supply and Labor Relations	7*
Market and Equidistant to Market	7*
Ground and Air Transportation	7*

* Maximum Possible

COMPARISON OF VOCATIONAL EDUCATION AS RATED BY THE SEVEN STATES

STATE	WEIGHTED SCORE	COMPARATIVE RANK	AFTER COUPLING PROCESS WEIGHTED SCORE	AFTER COUPLING PROCESS COMPARATIVE RANK
COLORADO	85	7	85	5
NEW MEXICO	5	23	5	19
ARIZONA	35	10	35	7
NEVADA	10	16	10	13
IDAHO	8	12	8	11
UTAH	43	10	43	9
WYOMING	NOT RATED		NOT RATED	

TABLE NUMBER 8

PLANT SITE SELECTION FACTORS CONSIDERED BY COMPANIES WHO LOCATED IN COLORADO STATE

SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK
LABOR SUPPLY	249	1
MARKET	192	2
GROUND TRANSPORTATION	148	3
AVAILABILITY OF LAND	108	4
EQUIDISTANT TO MARKET	97	5
AVAILABLE BUILDINGS	96	6
EDUCATION (VOCATIONAL AND/OR TECHNICAL)	85	7
AIR TRANSPORTATION	81	8
EDUCATION (COLLEGE TOWN)	68	9
RESIDENCE OF OWNER	57	10
ADEQUATE FINANCE	56	11
TAXES	54	12
LABOR RELATIONS	43	13
TRAFFIC	39	14
AVAILABLE RAW MATERIALS	37	15
UTILITIES	36	16
COMMUNITY ATTITUDES	29	17
COMMUNITY SIZE AND ADVANTAGES	29	17
INCOME OF RESIDENTS OF THE COMMUNITY	25	19

TABLE NUMBER 9

PLANT SITE SELECTION FACTORS CONSIDERED BY COMPANIES WHO LOCATED IN STATE OF NEW MEXICO

SELECTION FACTOR	WEIGHTED SCALE	COMPARATIVE RANK
AVAILABLE BUILDINGS	136	1
RESIDENCE OF OWNERS	132	2
MARKET	84	3
LABOR SUPPLY	69	4
GROUND TRANSPORTATION	59	5
RELATIONSHIP TO FEDERAL BUSINESS	57	6
ALLIED BUSINESS RELATIONSHIPS	56	7
AIR TRANSPORTATION	48	8
TRIBAL COUNCIL HELP	44	9
AVAILABILITY OF LAND	34	10
CLIMATE	32	11
EQUIDISTANT TO MARKET	23	12
TRAFFIC	23	12
ADEQUATE FINANCE	22	14
TAXES	21	15
FEDERAL FUNDS AVAILABLE	15	16
COMMUNITY ATTITUDES	14	17
COMMUNITY SIZE AND ADVANTAGES	14	17
EDUCATION (COLLEGE TOWN)	14	17
MOONLIGHTING OPERATIONS	9	20
LABOR RELATIONS	8	21
RELATIONSHIP TO HANDICAPPED AND RETIRED PEOPLE	8	22
EDUCATION (VOCATIONAL AND/OR TECHNICAL)	5	23

TABLE NUMBER 10

PLANT SITE SELECTION FACTORS CONSIDERED BY COMPANIES WHO LOCATED IN ARIZONA

SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK
LABOR SUPPLY	134	1
AVAILABILITY OF LAND	99	2
MARKET	88	3
RESIDENCE OF OWNER	69	4
AIR TRANSPORTATION	68	5
EQUIDISTANT TO MARKET	64	6
AVAILABLE BUILDINGS	50	7
ALLIED BUSINESS RELATIONS	45	8
GROUND TRANSPORTATION	37	9
EDUCATION (VOCATIONAL AND/OR TECHNICAL)	35	10
TAXES	30	11
EDUCATION (COLLEGE TOWN)	29	12
LABOR RELATIONS	24	13
COMMUNITY ATTITUDES	24	13

TABLE NUMBER 11

PLANT SITE SELECTION FACTORS CONSIDERED BY COMPANIES WHO LOCATED IN NEVADA

SELECTION FACTOR	WEIGHTED SCALE	COMPARATIVE RANK
GROUND TRANSPORTATION	89	1
TAXES	86	2
LABOR SUPPLY	59	3
EQUIDISTANT TO MARKET	43	4
COMMUNITY SIZE AND ADVANTAGES	38	5
AIR TRANSPORTATION	35	6
AVAILABILITY OF LAND	34	7
MARKET	30	8
ALLIED BUSINESS RELATIONSHIPS	27	9
AIR TRANSPORTATION	23	10
RELATIONSHIP TO FEDERAL BUSINESS	18	11
CLIMATE	17	12
LABOR RELATIONS	16	13
RESIDENCE OF OWNERS	13	14
COMMUNITY ATTITUDES	12	15
EDUCATION (VOCATIONAL AND/OR TECHNICAL)	10	16

TABLE NUMBER 12

PLANT SITE SELECTION FACTORS CONSIDERED BY COMPANIES WHO LOCATED IN IDAHO

SELECTION FACTORS	WEIGHTED SCORE	COMPARATIVE RANK
AVAILABLE RAW MATERIALS	33	1
UTILITIES	22	2
MARKET	14	3
GROUND TRANSPORTATION	13	4
LABOR SUPPLY	12	5
AVAILABILITY OF LAND	12	5
COMMUNITY SIZE AND ADVANTAGES	11	7
RECREATIONAL ACTIVITIES	10	8
RESIDENCE OF OWNERS	9	9
AVAILABLE BUILDINGS	9	9
TAXES	9	9
EDUCATION (VOCATIONAL AND/OR TECHNICAL)	8	12
POLLUTION, ETC.	8	12
COMMUNITY ATTITUDES	8	12

TABLE NUMBER 13

PLANT SITE SELECTION FACTORS CONSIDERED BY COMPANIES WHO LOCATED IN UTAH

SELECTION FACTOR	WEIGHTED SCORE	COMPARATIVE RANK
LABOR SUPPLY	251	1
AVAILABLE BUILDINGS	93	2
GROUND TRANSPORTATION	91	3
TAXES	91	3
MARKET	81	5
AVAILABLE RAW MATERIALS	74	6
COMMUNITY ATTITUDES	58	7
EQUIDISTANT TO MARKET	47	8
RESIDENCE OF OWNER	47	8
EDUCATION (VOCATIONAL AND/OR TECHNICAL)	43	10
EDUCATION (COLLEGE TOWN)	39	11
LABOR RELATIONS	32	12
ALLIED BUSINESS RELATIONSHIPS	31	13
AVAILABILITY OF LAND	29	14
COMMUNITY SIZE AND ADVANTAGES	26	15

TABLE NUMBER 14

PLANT SITE SELECTION FACTORS CONSIDERED BY COMPANIES WHO LOCATED IN WYOMING

SELECTION FACTORS	WEIGHTED SCORE	COMPARATIVE RANK
AVAILABLE RAW MATERIAL	52	1
GROUND TRANSPORTATION	46	2
MARKET	38	3
LABOR SUPPLY	35	4
UTILITIES	33	5
ADEQUATE FINANCE	17	6
LABOR RELATIONS	11	7
RESIDENCE OF OWNER	9	8
AVAILABLE BUILDINGS	6	9
COMMUNITY SIZE AND ADVANTAGES	5	10
TAXES	4	11
EDUCATION (VOCATIONAL AND/OR TECHNICAL)	0	0

QUESTION NUMBER 2

Is vocational education a factor considered by your company officials prior to selecting a plant site? Yes No Sometimes

INTERVIEWEE INFORMATION

Respondents were asked specifically to respond to this question, even though they had indicated previously the factors they considered as they selected their plant sites.

QUESTIONNAIRE INFORMATION: NONE GIVEN SPECIFIC TO THIS QUESTION

TABLES NUMBER 15 THROUGH 18 EXPLANATION

Tables Number 15 through 18 treat the information received from Question Number 2. All companies answered the question.

The percentage figures listed in all four tables was determined by dividing the total number of respondents who answered the question into the number who answered Yes or Sometimes.

ANALYSIS OF DATA TABLES NUMBER 15 THROUGH 18 (INTERVIEWEE GROUP)

It was determined that 74 out of 116 companies interviewed answered Yes that vocational education was a factor in their plant site selection process. Of this number, 10 answered Sometimes, and 14 indicated that vocational education was a secondary factor only.

Sixty-Four per cent of the companies interviewed responded that vocational education was a factor in their selection process.

The type of manufacturing company which responded most positively that vocational education was a factor in their selection process was the Electronic-Electrical-Refrigeration category, wherein 84% of the companies indicated that vocational education was a factor.

The manufacturing category which rated vocational education lowest as a factor in their selection process was the Metal Fabrication and Plating category, wherein only one out of two indicated vocational education to be a factor.

QUESTIONNAIRE GROUP

It was determined that 61 out of 90 questionnaires returned answered this question. Of this number, 21 answered Yes, 20 answered No, and 20 answered Sometimes.

If consideration is given to all 90 questionnaires, it would appear that 45% of the respondents would indicate that vocational education was a factor in their plant site selection process. Whereas, if consideration is given only to those respondents who answered the question, the percentage figure would be 67%.

Those manufacturing categories, wherein over 75% of the respondents who answered the question indicated that vocational education was a factor in their plant site selection process, are

Electronics-Electrical-Refrigeration, Metal Fabrication and Plating, Clothing, Mobile Equipment and Machinery, and Health Equipment and Supplies-Jewelry-Hobby and Recreational Equipment and Supplies.

TABLE NUMBER 17 (Interviewee Group) compares the three different size plants in terms of number of employees as they respond to vocational education being a factor in their plant site selection process.

The middle size plants and the large plants responded most that vocational education was a factor in their plant site selection process, with 74% of both Groups indicating Yes.

TABLE NUMBER 18 (Questionnaire Group) makes a comparison among the states as to the percentage of the respondents answering that vocational education is a factor in selecting their plant sites. The states were relatively close in indicating Yes or Sometimes that vocational education is a factor. Approximately 2 out of 3 respondents indicated vocational education to be a factor.

TABLE NUMBER 15

VOCATIONAL EDUCATION AS A PLANT SITE SELECTION FACTOR
(BY MANUFACTURING CATEGORY)
(INTERVIEWEE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	RESPONSES			PERCENTAGE OF RESPONDENTS WHO INDICATED VOCATIONAL EDUCATION AS A FACTOR
	YES	NO	SOMETIMES	
ELECTRONIC-ELECTRICAL-REFRIGERATION	26	6	5	84%
METAL FABRICATION AND PLATING	1	2	0	33%
MACHINE SHOP PRODUCTS	9	5	1	67%
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	6	7	0	46%
CLOTHING	4	3	0	57%
PLASTICS-RUBBER PRODUCTS-SYNTHETICS-PAPER-MAPS	5	4	1	60%
WOOD PRODUCTS-CONSTRUCTION PRODUCTS	4	5	2	55%
MOBILE EQUIPMENT AND MACHINERY	7	6	0	54%
HEALTH EQUIPMENT-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	2	4	1	43%
TOTAL	64	42	10	64%

TABLE NUMBER 16

VOCATIONAL EDUCATION AS A PLANT SITE SELECTION FACTOR
(BY MANUFACTURING CATEGORY)

(QUESTIONNAIRE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	RESPONSES			PERCENTAGE OF RESPONDENTS WHO INDICATED VOCATIONAL EDUCATION AS A FACTOR
	YES	NO	SOMETIMES	
ELECTRONIC-ELECTRICAL AND REFRIGERATION	5	9	10	63%
METAL FABRICATION AND PLATING	3	1	4	88%
MACHINE SHOP PRODUCTS	0	0	0	0%
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	2	3	1	50%
CLOTHING	4	0	1	100%
PLASTICS-RUBBER PRODUCTS SYNTHETICS-PAPER-MAPS	1	5	2	38%
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	0	1	0	0%
MOBILE EQUIPMENT AND MACHINERY	5	1	2	88%
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	1	0	0	100%
TOTAL	21	20	20	67%

TABLE NUMBER 17

VOCATIONAL EDUCATION AS A PLANT SITE SELECTION FACTOR BY NUMBER OF EMPLOYEES

(INTERVIEWEE AND QUESTIONNAIRE GROUPS)

NUMBER OF EMPLOYEES	NUMBER OF RESPONSES			PERCENTAGE OF RESPONDENTS WHO INDICATED VOCATIONAL EDUCATION WAS A SELECTION FACTOR
	YES	NO	SOMETIMES	
1-100 Employees	59	60	21	58%
101-1,000 Employees	21	10	7	74%
Over 1,000 Employees	4	2	1	74%
Totals	84	72	29	65%

TABLE NUMBER 18

VOCATIONAL EDUCATION AS A PLANT SITE SELECTION FACTOR
BY STATES

(INTERVIEWEE AND QUESTIONNAIRE GROUPS)

STATE	NUMBER OF RESPONSES YES	NO	SOMETIMES	PERCENTAGE OF RESPONDENTS WHO INDICATED VOCATIONAL EDUCATION WAS A SELECTION FACTOR
COLORADO	24	17	8	65%
NEW MEXICO	12	18	4	49%
ARIZONA	18	11	3	66%
NEVADA	8	5	2	67%
IDAHO	2	3	0	41%
UTAH	19	16	12	67%
WYOMING	3	3	0	50%
TOTALS	86	73	29	65%

QUESTION NUMBER 3

Indicate the specific vocational courses which are factors in your plant site selection. (circle the letter in front of correct response(s)

a. Business and Secretarial Training
b. Metal and Metal Fabrication Trades
c. Machine Trades
d. Automotive Trades
e. Needle Trades
f. Construction Trades
g. Graphic Arts
h. Electrical Trades
i. Electronic Trades
j. Agricultural Occupations
k. Sales Occupations
l. Health Occupations
m. Others (Indicate)

INTERVIEWEE INFORMATION

A description of each vocational course was given to the Interviewee upon request.

QUESTIONNAIRE INFORMATION: NONE GIVEN

TABLE NUMBER 19 AND TABLE NUMBER 20 EXPLANATION

Table Number 19 and Table Number 20 pertain to information received from Question Number 3. Respondents answering this question in most cases selected more than one vocational course.

POPULATION TABLES NUMBER 19 AND 20

NUMBER OF RESPONDENTS (INTERVIEWEE GROUP)	116
NUMBER OF RESPONDENTS ANSWERING THIS QUESTION	72
PERCENTAGE OF RESPONDENTS ANSWERING THIS QUESTION	62%

NUMBER OF RESPONDENTS (QUESTIONNAIRE GROUP)	90
NUMBER OF RESPONDENTS ANSWERING THIS QUESTION	40
PERCENTAGE OF RESPONDENTS ANSWERING THIS QUESTION	44%

TABLE NUMBER 19 AND TABLE NUMBER 20 ANALYSIS OF DATA

INTERVIEWEE GROUP: The six most frequently chosen courses were: Machine Shop, Business and Secretarial Training, Electronics, Metal Fabrication, Graphic Arts, and Sales Occupational Training.

QUESTIONNAIRE GROUP: The six most frequently mentioned courses were: Machine Shop, Metal Fabrication, Electronics, Business and Secretarial Training, Electrical, and Needle Trades.

TABLE NUMBER 19

VOCATIONAL COURSES WHICH WERE CONSIDERED FACTORS IN PLANT SITE SELECTIONS

(INTERVIEWEE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	VOCATIONAL SUBJECTS WHICH WERE FACTORS CONSIDERED IN THE SELECTION PROCESS	NUMBER OF COMPANIES RESPONDING	NUMBER OF TIMES SELECTED
ELECTRONIC-ELECTRICAL AND REFRIGERATION	ELECTRONICS	29	25
	BUSINESS AND SECRETARIAL		15
	METAL FABRICATION		13
	MACHINE TRADES		13
	GRAPHIC ARTS		8
	ELECTRICAL TRADES		8
	SALES OCCUPATIONS		7
	HEALTH OCCUPATIONS		5
	CONSTRUCTION TRADES		2
METAL FABRICATION AND PLATING	METAL FABRICATION	1	1
	GRAPHIC ARTS		1
MACHINE SHOP PRODUCTS	MACHINE SHOP	10	10
	GRAPHIC ARTS		4
	METAL FABRICATION		3
	BUSINESS AND SECRETARIAL		1
	ELECTRICAL TRADES		1
	SALES OCCUPATIONS		1

TABLE NUMBER 19 (CONT.)

VOCATIONAL COURSES WHICH WERE CONSIDERED FACTORS IN PLANT SITE SELECTIONS

(INTERVIEWEE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	VOCATIONAL SUBJECTS WHICH WERE FACTORS CONSIDERED IN THE SELECTION PROCESS	NUMBER OF COMPANIES RESPONDING	NUMBER OF TIMES SELECTED
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	BUSINESS AND SECRETARIAL	6	4
	ELECTRICAL TRADES		3
	SALES OCCUPATIONS		3
	AGRICULTURAL OCCUPATIONS		2
	MACHINE TRADES		2
	ELECTRONIC TRADES		1
	HEALTH OCCUPATIONS		1
CLOTHING	NEEDLE TRADES	5	4
	BUSINESS AND SECRETARIAL		2
	MACHINE SHOP		1
	ELECTRICAL TRADES		1
	ELECTRONIC TRADES		1
PLASTICS-RUBBER PRODUCTS-SYNTHETICS-PAPERS-MAPS	MACHINE SHOP	6	4
	BUSINESS AND SECRETARIAL		3
	METAL FABRICATION		2
	CONSTRUCTION TRADES		2
	ELECTRICAL TRADES		2
	GRAPHIC ARTS		1
	SALES OCCUPATIONS		1

TABLE NUMBER 19 (CONT.)

VOCATIONAL COURSES WHICH WERE CONSIDERED FACTORS IN PLANT SITE SELECTIONS

(INTERVIEWEE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	VOCATIONAL SUBJECTS WHICH WERE FACTORS CONSIDERED IN THIS SELECTION PROCESS	NUMBER OF COMPANIES RESPONDING	NUMBER OF TIMES SELECTED
WOOD PRODUCTS-CONSTRUCTION PRODUCTS	CONSTRUCTION TRADES	6	6
	BUSINESS AND SECRETARIAL		2
	MACHINE SHOP		1
MOBILE EQUIPMENT AND MACHINERY	MACHINE TRADES	7	6
	METAL FABRICATION		5
	SALES OCCUPATIONS		4
	ELECTRICAL TRADES		4
	BUSINESS AND SECRETARIAL		3
	GRAPHIC ARTS		2
	AUTOMOTIVE TRADES		1
	AGRICULTURAL OCCUPATIONS		1
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	BUSINESS AND SECRETARIAL	2	1
	MACHINE TRADES		1
	GRAPHIC ARTS		1
	ELECTRONICS		1
	SALES OCCUPATIONS		1

TABLE NUMBER 19 (CONT.)

VOCATIONAL COURSES WHICH WERE CONSIDERED FACTORS IN PLANT SITE SELECTIONS

(INTERVIEWEE GROUP)

VOCATIONAL SUBJECTS WHICH WERE FACTORS CONSIDERED IN THIS SELECTION PROCESS	TOTALS
MACHINE SHOP	38
BUSINESS AND SECRETARIAL	31
ELECTRONICS	30
METAL FABRICATION	25
GRAPHIC ARTS	18
SALES OCCUPATIONS	18
ELECTRICAL TRADES	17
CONSTRUCTION TRADES	8
HEALTH OCCUPATIONS	6
NEEDLE TRADES	4
AGRICULTURAL OCCUPATIONS	3
AUTOMOTIVE TRADES	1

TABLE NUMBER 20

VOCATIONAL COURSES WHICH WERE CONSIDERED FACTORS IN PLANT SITE SELECTIONS

(QUESTIONNAIRE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	VOCATIONAL SUBJECTS WHICH WERE FACTORS CONSIDERED IN THE SELECTION PROCESS	NUMBER OF COMPANIES RESPONDING	NUMBER OF TIMES SELECTED
ELECTRONIC-ELECTRICAL AND REFRIGERATION	ELECTRONICS	12	9
	MACHINE SHOP		7
	BUSINESS AND SECRETARIAL		6
	METAL AND METAL FABRICATION		5
	ELECTRICAL TRADES		3
	GRAPHIC ARTS		2
METAL FABRICATION AND PLATING	METAL FABRICATION	4	3
	MACHINE TRADES		2
MACHINE SHOP PRODUCTS	MACHINE SHOP	1	1
	METAL FABRICATION		1
FOODS-FEEDS-MINERALS CHEMICALS-FERTILIZERS	BUSINESS AND SECRETARIAL	4	3
	METAL FABRICATION		1
	MACHINE SHOP		1
	AUTOMOTIVE TRADES		1
	GRAPHIC ARTS		1
	ELECTRICAL TRADES		1
	SALES OCCUPATIONS		1

TABLE NUMBER 20 (CONT.)

VOCATIONAL COURSES WHICH WERE CONSIDERED FACTORS IN PLANT SITE SELECTIONS

(QUESTIONNAIRE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	VOCATIONAL SUBJECTS WHICH WERE FACTORS CONSIDERED IN THE SELECTION PROCESS	NUMBER OF COMPANIES RESPONDING	NUMBER OF TIMES SELECTED
CLOTHING	NEEDLE TRADES	5	4
	MACHINE SHOP		1
	ELECTRICAL TRADES		1
PLASTICS-RUBBER PRODUCTS-SYNTHETICS-PAPER-MAPS	MACHINE TRADES	4	3
	METAL FABRICATION		1
	BUSINESS AND SECRETARIAL		1
WOOD PRODUCTS-CONSTRUCTION PRODUCTS	SALES OCCUPATIONS	2	1
MOBILE EQUIPMENT AND MACHINERY	METAL FABRICATION	6	7
	MACHINE TRADES		4
	BUSINESS AND SECRETARIAL		1
	ELECTRICAL TRADES		1
	ELECTRONICS		1
	SALES OCCUPATIONS		1

TABLE NUMBER 20 (CONT.)

VOCATIONAL COURSES WHICH WERE CONSIDERED FACTORS IN PLANT SITE SELECTIONS

(QUESTIONNAIRE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	VOCATIONAL SUBJECTS WHICH WERE FACTORS CONSIDERED IN THE SELECTION PROCESS	NUMBER OF COMPANIES RESPONDING	NUMBER OF TIMES SELECTED
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	MACHINE TRADES	2	2
	ELECTRONIC TRADES		2
	ELECTRICAL TRADES		1
	METAL FABRICATION		1
	BUSINESS AND SECRETARIAL		1

VOCATIONAL SUBJECTS WHICH WERE FACTORS CONSIDERED IN THE SELECTION PROCESS	TOTALS
MACHINE SHOP	20
METAL FABRICATION	19
ELECTRONIC TRADES	14
BUSINESS AND SECRETARIAL	13
ELECTRICAL TRADES	7
NEEDLE TRADES	4
SALES OCCUPATIONS	4
GRAPHIC ARTS	3
AUTOMOTIVE TRADES	1

QUESTION NUMBER 4

How much importance do you place upon the following features of a vocational education program in plant site selection?

VOCATIONAL EDUCATION PROGRAM	VERY IMPORTANT	IMPORTANT	UNIMPORTANT
TRAINING PROGRAMS CONDUCTED IN YOUR PLANT BY VOCATIONAL PEOPLE			
TRAINING PROGRAMS CONDUCTED IN A VOCATIONAL SCHOOL			
SCHOOL FACILITIES INCLUDING TOOLS, STAFF, ETC.			
COMMUNITY ATTITUDE TOWARDS VOCATIONAL SCHOOL			
COURSES WHICH CARRY COLLEGE CREDIT			
COURSES WITHOUT COLLEGE CREDIT			

INTERVIEWEE INFORMATION

Terminal credit was explained when asked for an explanation.

QUESTIONNAIRE INFORMATION: NONE GIVEN SPECIFICALLY TO THIS QUESTION

TABLE NUMBER 21 and TABLE NUMBER 22 EXPLANATION

Table Number 21 treats the information received from the Interviewee Group. The percentage figures in Table Number 21 and Table Number 22 were determined by dividing the number of respondents who answered the question into the total number who rated the factor as being *Very Important* or *Important*.

Table Number 22 treats the information received from the Questionnaire Group.

POPULATION TABLES NUMBER 21 and 22

NUMBER OF RESPONDENTS (INTERVIEWEE GROUP)	116
NUMBER OF RESPONDENTS ANSWERING THIS QUESTION	72
PERCENTAGE OF RESPONDENTS ANSWERING THIS QUESTION	62%

NUMBER OF RESPONDENTS (QUESTIONNAIRE GROUP)	90
NUMBER OF RESPONDENTS ANSWERING THIS QUESTION	40
PERCENTAGE OF RESPONDENTS ANSWERING THIS QUESTION	44%

TABLE NUMBER 21 ANALYSIS OF DATA (INTERVIEWEE GROUP)

Only slightly over one-third of the respondents indicated training programs conducted by vocational school people in their plant was *Important* or *Very Important*, while 90% or more of the respondents indicated *Community Attitude towards Vocational Education*, *Courses which Carry College Credit*, *School Facilities, Etc.*, and *Training Conducted in a Vocational School* were *Important or Very Important*.

TABLE NUMBER 22 ANALYSIS OF DATA (QUESTIONNAIRE GROUP)

There seemed to be a fairly close correlation between the percentage figures pertaining to the Interviewee Group as outlined in Table Number 21, and the Questionnaire Group indicated in Table Number 22.

One noticable exception was brought out relating to College Credit, where the differential was 95% to 59%, the Questionnaire Group indicating the lower percentage figure.

TABLE NUMBER 21

IMPORTANCE PLACED UPON FEATURES OF VOCATIONAL EDUCATION IN PLANT SITE SELECTION

(INTERVIEWEE GROUP)

VOCATIONAL EDUCATION FACTORS	RESPONSES VERY IMPORTANT	 IMPORTANT	 UNIMPORTANT	PERCENTAGE OF RESPONDENTS WHO INDICATED IMPORTANT OR VERY IMPORTANT
TRAINING PROGRAMS CONDUCTED IN MANUFACTURING PLANT BY VOCATIONAL PEOPLE	8	19	46	37%
TRAINING PROGRAMS CONDUCTED IN A VOCATIONAL SCHOOL	13	53	7	90%
SCHOOL FACILITIES INCLUDING TOOLS, STAFF, ETC.	18	49	5	93%
COMMUNITY ATTITUDE TOWARDS VOCATIONAL SCHOOL	20	51	4	95%
COURSES WHICH CARRY COLLEGE CREDIT	18	40	3	95%
COURSES WITHOUT COLLEGE CREDIT (TERMINAL CREDIT)	11	46	16	78%

TABLE NUMBER 22

IMPORTANCE PLACED UPON FEATURES OF VOCATIONAL EDUCATION IN PLANT SITE SELECTION

(QUESTIONNAIRE GROUP)

VOCATIONAL EDUCATION FACTORS	VERY IMPORTANT	IMPORTANT	UNIMPORTANT	PERCENTAGE OF RESPONDENTS WHO INDICATED IMPORTANT OR VERY IMPORTANT
TRAINING PROGRAMS CONDUCTED IN MANUFACTURING PLANT BY VOCATIONAL PEOPLE	2	11	17	43%
TRAINING PROGRAMS CONDUCTED IN A VOCATIONAL SCHOOL	11	16	4	87%
SCHOOL FACILITIES INCLUDING TOOLS, STAFF, ETC.	7	18	2	93%
COMMUNITY ATTITUDE TOWARDS VOCATIONAL SCHOOL	9	17	3	90%
COURSES WHICH CARRY COLLEGE CREDIT	5	12	12	59%
COURSES WITHOUT COLLEGE CREDIT (TERMINAL CREDIT)	1	18	11	63%

QUESTION NUMBER 5

Indicate the importance you place upon the following vocational programs as factors in influencing your plant site selection:

FACTOR	VERY IMPORTANT	IMPORTANT	UNIMPORTANT
SUPERVISORY AND/OR MANAGEMENT TRAINING			
TECHNICIAN LEVEL TRAINING			
SKILLED CRAFTSMAN TRAINING			
SEMI-SKILLED TRAINING SUCH AS PROGRAMS FOR ASSEMBLYMEN, OPERATORS, ETC.			
SERVICE ORIENTED TRAINING SUCH AS PROGRAMS FOR HEALTH AND CAFETERIA OCCUPATIONS, ETC.			

INTERVIEWEE AND QUESTIONNAIRE INFORMATION: NONE NEEDED--NONE GIVEN

TABLES NUMBER 23 and 24 EXPLANATION

Table Number 23 and Table Number 24 relate to this question, with Table Number 23 relating to the Interviewee Group and Table Number 24 relating to the Questionnaire Group.

The percentage figures were arrived at by dividing the number of respondents who answered the question into the number who answered that the program was *Important* or *Very Important*.

POPULATION TABLES NUMBER 23 and 24

IN THE INTERVIEWEE GROUP, 72 OUT OF 116 ANSWERED THE QUESTION (62%)

IN THE QUESTIONNAIRE GROUP, 40 OUT OF 90 ANSWERED THE QUESTION (44%)

TABLE NUMBER 23 and TABLE NUMBER 24 ANALYSIS OF DATA

Comparing the two tables, one should note that the Technical, Skilled and Semi-Skilled training programs received 72% or more of all respondents indicating these programs were Important or Very Important in the plant site selection process.

Information obtained from the questionnaire indicated Technical Training, followed by Skilled and Semi-Skilled Training as being factors of greatest importance in the selection process, whereas the Interviewee Group reversed these, indicating that Skilled Training followed by Semi-Skilled and Technical Training were factors of greatest importance.

One striking point for Vocational Educators should be that there is considerable importance placed on all three levels of vocational education by the manufacturing industry.

TABLE NUMBER 23

IMPORTANCE PLACED UPON CERTAIN VOCATIONAL PROGRAMS AS FACTORS IN PLANT SITE SELECTION

(INTERVIEWEE GROUP)

VOCATIONAL PROGRAMS	VERY IMPORTANT	RESPONSES IMPORTANT	UNIMPORTANT	PERCENTAGE OF RESPONDENTS WHO INDICATED VOCATIONAL PROGRAMS WERE IMPORTANT OR VERY IMPORTANT
SUPERVISORY AND/OR MANAGEMENT TRAINING	7	32	33	54%
TECHNICIAN LEVEL TRAINING	32	33	21	76%
SKILLED CRAFTSMAN TRAINING	28	42	5	93%
SEMI-SKILLED TRAINING SUCH AS PROGRAMS FOR ASSEMBLYMEN, OPERATORS, ETC.	20	38	14	81%
SERVICE ORIENTED TRAINING SUCH AS PROGRAMS FOR HEALTH AND CAFETERIA OCCUPATIONS, ETC.	5	17	51	30%

TABLE NUMBER 24

IMPORTANCE PLACED UPON CERTAIN VOCATIONAL PROGRAMS AS FACTORS IN PLANT SITE SELECTION

(QUESTIONNAIRE GROUP)

VOCATIONAL PROGRAMS	VERY IMPORTANT	IMPORTANT	UNIMPORTANT	PERCENTAGE OF RESPONDENTS WHO INDICATED VOCATIONAL PROGRAMS WERE IMPORTANT OR VERY IMPORTANT
SUPERVISORY AND/OR MANAGEMENT TRAINING	8	9	8	68%
TECHNICIAN LEVEL TRAINING	13	12	6	81%
SKILLED CRAFTSMAN TRAINING	9	12	7	75%
SEMI-SKILLED TRAINING SUCH AS PROGRAMS FOR ASSEMBLYMEN, OPERATORS, ETC.	9	12	8	72%
SERVICE ORIENTED TRAINING SUCH AS PROGRAMS FOR HEALTH AND CAFETERIA OCCUPATIONS, ETC.	3	7	21	32%

QUESTION NUMBER 6

Does the proximity of the vocational school to the proposed plant site make a difference in the degree of significance you place upon vocational education as a positive factor in plant site selection? Check the correct response(s)

DISTANCE OF SCHOOL FROM PROPOSED SITE	VERY SIGNIFICANT	SIGNIFICANT	INSIGNIFICANT
WITHIN THE SAME COMMUNITY			
WITHIN THE SAME COUNTY			
WITHIN 20 MILES			
WITHIN 40 MILES			
WITHIN 80 MILES			
OVER 80 MILES AWAY, BUT WITHIN THE STATE			

INTERVIEWEE AND QUESTIONNAIRE INFORMATION: NONE NEEDED--NONE GIVEN

TABLES NUMBER 25 THROUGH 28 EXPLANATION

To answer the concern that communities have regarding the question, do they need a vocational school in their community or county, to attract the manufacturing industry, this question was made a part of the survey.

Tables Number 25 and 26 relate to information received from the Interviewee Group and the Questionnaire Group upon distance that the vocational school is away from the plant site.

Table Number 27 and Table Number 28 relate to the responses received from the nine different manufacturing categories, as to the significance they place upon distance the vocational school is away from the proposed site, as a factor in their plant site selection process.

The weighted scores in Table Number 27 and Table Number 28 were determined by assigning 2 points to a Very Significant response, 1 point to a Significant response, 0 points to an Insignificant response.

POPULATION TABLES NUMBER 25 THROUGH 28

NUMBER OF RESPONDENTS FROM INTERVIEWEE GROUP	116
NUMBER OF RESPONDENTS ANSWERING THIS QUESTION	72
NUMBER OF RESPONDENTS FROM QUESTIONNAIRE GROUP	90
NUMBER OF RESPONDENTS ANSWERING THIS QUESTION	40

TABLES NUMBER 25 THROUGH 28 ANALYSIS OF DATA

First considering information contained on Table Number 25 and Table Number 26, both the Interviewee Group and the Questionnaire Group indicated that anywhere in the county or within 20 miles of the plant site was as meaningful as being right in the community.

Approximately three-fourths of the Interviewee Group respondents answering this question indicated that a vocational school within 40 miles of the proposed plant site was still significant as meeting the vocational needs of the manufacturing plant.

Approximately 50% of the Interviewee Group indicated that 80 miles or within the state was sufficient to answer their vocational needs as a factor in the selection process, whereas, less than one-fourth of the respondents of the Questionnaire Group shared the same opinion.

In analyzing the information on Table Number 27 and Table Number 28, pertaining to the responses of the nine different categories of manufacturers, one can note a sharp difference between 80 miles away and within 20 miles, or within the same county, as satisfying the needs of vocational education in the selection process.

Very little difference is noted between being right in the community, or being anywhere in the county or 20 miles away.

TABLE NUMBER 25

DISTANCE OF VOCATIONAL SCHOOL FROM PLANT SITE AS A FACTOR IN THE SELECTION PROCESS

(INTERVIEWEE GROUP)

DISTANCE OF SCHOOL FROM PROPOSED SITE	RESPONSES VERY SIGNIFICANT	SIGNIFICANT	INSIGNIFICANT	PERCENTAGE OF RESPONDENTS WHO INDICATED SIGNIFICANT OR VERY SIGNIFICANT
WITHIN THE SAME COMMUNITY	37	31	5	93%
WITHIN THE SAME COUNTY	41	31	4	95%
WITHIN 20 MILES	32	35	7	90%
WITHIN 40 MILES	19	38	18	76%
WITHIN 80 MILES	10	29	36	52%
OVER 80 MILES AWAY, BUT WITHIN THE STATE	5	29	39	47%

TABLE NUMBER 26

DISTANCE OF VOCATIONAL SCHOOL FROM PLANT SITE AS A FACTOR IN THE SELECTION PROCESS

(QUESTIONNAIRE GROUP)

DISTANCE OF SCHOOL FROM PROPOSED SITE	RESPONSES VERY SIGNIFICANT	 SIGNIFICANT	 INSIGNIFICANT	PERCENTAGE OF RESPONDENTS WHO INDICATED SIGNIFICANT OR VERY SIGNIFICANT
WITHIN THE SAME COMMUNITY	18	12	2	94%
WITHIN THE SAME COUNTY	8	19	2	93%
WITHIN 20 MILES	7	18	3	89%
WITHIN 40 MILES	2	9	17	39%
WITHIN 80 MILES	1	5	21	22%
OVER 80 MILES AWAY, BUT WITHIN THE STATE	1	5	21	22%

TABLE NUMBER 27

DISTANCE OF VOCATIONAL SCHOOL FROM PLANT SITE AS A FACTOR IN THE SELECTION PROCESS

(BY MANUFACTURING CATEGORY)

(INTERVIEWEE GROUP)

	WEIGHTED SCORES					
PRODUCT TYPE OR MANUFACTURING CATEGORY	WITHIN SAME COMMUNITY	WITHIN SAME COUNTY	WITHIN 20 MILES	WITHIN 40 MILES	WITHIN 80 MILES	WITHIN THE STATE
ELECTRONIC-ELECTRICAL AND REFRIGERATION	44	42	39	29	20	19
METAL FABRICATION AND PLATING	2	2	2	0	0	0
MACHINE SHOP PRODUCTS	14	13	12	10	8	6
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	9	6	9	4	4	4
CLOTHING	8	8	5	1	0	0
PLASTICS-RUBBER PRODUCTS SYNTHETICS-PAPER-MAPS	12	12	9	6	5	4
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	12	12	10	10	6	3
MOBILE EQUIPMENT AND MACHINERY	14	14	10	10	6	5
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	4	4	3	2	0	0

TABLE NUMBER 28

DISTANCE OF VOCATIONAL SCHOOL FROM PLANT SITE AS A FACTOR IN THE SELECTION PROCESS

(BY MANUFACTURING CATEGORY)

(QUESTIONNAIRE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	WEIGHTED SCORES WITHIN SAME COMMUNITY	WITHIN SAME COUNTY	WITHIN 20 MILES	WITHIN 40 MILES	WITHIN 80 MILES	WITHIN THE STATE
ELECTRONIC-ELECTRICAL AND REFRIGERATION	20	11	12	4	2	2
METAL FABRICATION AND PLATING	7	3	3	2	2	2
MACHINE SHOP PRODUCTS	0	0	0	0	0	0
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	4	4	4	4	4	3
CLOTHING	7	7	7	2	0	0
PLASTICS-RUBBER PRODUCTS SYNTHETICS-PAPER-MAPS	2	2	1	0	0	0
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	0	0	0	0	0	0
MOBILE EQUIPMENT AND MACHINERY	10	10	7	3	2	2
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	2	0	0	0	0	0

QUESTION NUMBER 7

Have you ever rejected a plant site because of a lack of vocational education facilities and programs? Yes No Sometimes

INTERVIEW INFORMATION

Vocational education was explained to include training for skilled and technical jobs. Facilities were explained as meaning a school with shops, classrooms, tools and equipment necessary to train youth and adults for employment in the manufacturing industry.

QUESTIONNAIRE INFORMATION (NONE GIVEN)

ANALYSIS OF DATA (INTERVIEWEE GROUP)

A review of the responses indicated that 2 electronic manufacturing companies had rejected a plant site due to lack of a vocational education program adequate to meet their training needs.

One of the electronic companies was located in Utah; the other company was in Arizona.

One electronic company employed 3,000 people; the other employed 4,400 people.

All other companies answering this question indicated they had not rejected a plant site because of a lack of vocational education facilities or programs.

ANALYSIS OF DATA (QUESTIONNAIRE GROUP)

Only 31 of the 92 companies returning the questionnaire answered this question, and only one of them indicated that they had rejected a plant site because of the lack of vocational education facilities or programs. This was a clothing manufacturer from Utah.

This company has four different plants in four different communities. All four plants are located in seperate counties where a vocational education program exists. The number of employees range from 75 to 150 employees per plant.

TABLE NUMBER 29

PLANT SITE REJECTION BECAUSE OF A LACK OF VOCATIONAL EDUCATION

(INTERVIEWEE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	SAMPLE SIZE	NUMBER OF ANSWERS TO QUESTION	NUMBER OF YES ANSWERS	NUMBER OF NO ANSWERS	NUMBER OF SOMETIMES ANSWERS
ELECTRONIC-ELECTRICAL AND REFRIGERATION	37	28	2	26	0
METAL FABRICATION AND PLATING	3	1	0	1	0
MACHINE SHOP PRODUCTS	15	7	0	7	0
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	13	6	0	6	0
CLOTHING	7	4	0	4	0
PLASTICS-RUBBER PRODUCTS-SYNTHETICS-PAPER-MAPS	10	7	0	7	0
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	11	6	0	6	0
MOBILE EQUIPMENT AND MACHINERY	13	8	0	8	0
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	7	2	0	2	0
TOTALS	116	69	2	67	0

TABLE NUMBER 30

PLANT SITE REJECTION BECAUSE OF A LACK OF VOCATIONAL EDUCATION

(QUESTIONNAIRE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	SAMPLE SIZE	NUMBER OF ANSWERS TO QUESTION	NUMBER OF YES ANSWERS	NUMBER OF NO ANSWERS	NUMBER OF SOMETIMES ANSWERS
ELECTRONIC-ELECTRICAL AND REFRIGERATION	27	9	0	9	0
METAL FABRICATION AND PLATING	9	4	0	4	0
MACHINE SHOP PRODUCTS	1	0	0	0	0
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	6	1	0	1	0
CLOTHING	9	6	1	5	0
PLASTICS-RUBBER PRODUCTS-SYNTHETICS-PAPER-MAPS	11	2	0	2	0
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	12	0	0	0	0
MOBILE EQUIPMENT AND MACHINERY	13	7	0	7	0
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	2	2	0	2	0
TOTALS	90	31	1	30	0

QUESTION NUMBER 8

Is the adequacy of vocational education a factor you consider prior to expanding your existing plant facilities and personnel?
Yes No Sometimes (circle correct response(s)

INTERVIEWEE GROUP AND QUESTIONNAIRE GROUP INFORMATION: NONE GIVEN

TABLES NUMBER 31 and 32 EXPLANATION

The percentage figures in both tables were figured by dividing the total number of respondents to this question into the number who answered Yes or Sometimes.

TABLES 31 and 32 POPULATION

Population figures on both tables can be figured by adding together the Yes, No, and Sometimes responses for each of the manufacturing categories.

TABLES NUMBER 31 and 32 ANALYSIS OF DATA

The highest response of the Questionnaire Group indicating vocational education as a factor prior to expanding their plant facilities and personnel was the Clothing category, where 6 out of 6 plants indicated Yes or Sometimes.

The manufacturing category of Mobile Equipment and Machinery was highest among responses from the Interviewee Group, with 7 out of 11 plants responding Yes. This manufacturing category was second highest in the Questionnaire Group, where 7 out of 9 plants indicated Yes.

The percentage of all respondents answering Yes or Sometimes was slightly higher in the Questionnaire Group than in the Interviewee Group, 64% to 51%.

TABLE NUMBER 31

VOCATIONAL EDUCATION AS A FACTOR CONSIDERED PRIOR TO EXPANDING EXISTING PLANT FACILITIES AND PERSONNEL

(INTERVIEWEE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	RESPONSES			PERCENTAGE OF RESPONDENTS WHO INDICATED VOCATIONAL EDUCATION WAS A FACTOR
	YES	NO	SOMETIMES	
ELECTRONIC-ELECTRICAL AND REFRIGERATION	15	14	7	61%
METAL FABRICATION AND PLATING	1	2	0	33%
MACHINE SHOP PRODUCTS	7	6	2	60%
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	3	10	0	23%
CLOTHING	3	3	0	50%
PLASTICS-RUBBER PRODUCTS SYNTHETICS-PAPER-MAPS	4	6	0	40%
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	3	4	2	56%
MOBILE EQUIPMENT AND MACHINERY	7	4	0	64%
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	2	3	1	50%
TOTALS	45	52	10	51%

TABLE NUMBER 32

VOCATIONAL EDUCATION AS A FACTOR CONSIDERED PRIOR TO EXPANDING EXISTING PLANT FACILITIES AND PERSONNEL

(QUESTIONNAIRE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	RESPONSES			PERCENTAGE OF RESPONDENTS WHO INDICATED VOCATIONAL EDUCATION WAS A FACTOR
	YES	NO	SOMETIMES	
ELECTRONIC-ELECTRICAL AND REFRIGERATION	8	10	7	60%
METAL FABRICATION AND PLATING	4	2	2	75%
MACHINE SHOP PRODUCTS	--	--	--	--
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	1	4	1	33%
CLOTHING	5	0	1	100%
PLASTICS-RUBBER PRODUCTS SYNTHETICS-PAPER-MAPS	1	5	4	50%
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	--	--	--	--
MOBILE EQUIPMENT AND MACHINERY	5	2	2	78%
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	--	--	--	--
TOTALS	24	23	17	64%

QUESTION NUMBER 9

As a factor in your plant site selections, do you have a preference as to the kind of school conducting vocational education?
Yes No Sometimes (Circle correct response(s) If answer is "Yes," rate the following schools according to your preference: (1 being most preferred, 2 next, etc.)

University or College ______________________

Private Business College______________________

Private Trade Schools______________________

Junior or Community Colleges______________________

High School Vocational Education Schools ________

INTERVIEWEE AND QUESTIONNAIRE INFORMATION

The Interviewee Group, after answering the question, were asked to respond to the place of public supported Trade-Technical schools as a selection factor.

QUESTIONNAIRE GROUP: No information given.

TABLE NUMBER 33 EXPLANATION

The weighted score was obtained by assigning a score of 5 points for each 1st place response, 4 for 2nd, ---1 for 5th place.

POPULATION TABLE NUMBER 33

NUMBER OF RESPONDENTS (INTERVIEWEE GROUP)	116
NUMBER OF RESPONDENTS ANSWERING THIS QUESTION	72
PERCENTAGE OF RESPONDENTS ANSWERING THIS QUESTION	62%
NUMBER OF RESPONDENTS (QUESTIONNAIRE GROUP)	90
NUMBER OF RESPONDENTS ANSWERING THIS QUESTION	40
PERCENTAGE OF RESPONDENTS ANSWERING THIS QUESTION	44%

TABLE NUMBER 33 ANALYSIS OF DATA

University and Colleges received the highest rank in both the Questionnaire Group and the Interviewee Group.

High School with strong vocational education programs rated surprisingly high, being rated 2nd in the Questionnaire Group and almost comparable to Junior and Community Colleges in the Interviewee Group.

Public Supported Trade-Technical Schools received a surprisingly high write-in support on the questionnaire. Surprising only, however, in the sense that it was inadvertantly left off the questionnaire and interview instrument.

Those interviewed many times expressed the desire for strengthening the post high school vocational-technical education programs of the states. Respondents from Arizona, New Mexico, Colorado and Nevada were especially vocal in this respect.

TABLE NUMBER 33

SCHOOL PREFERENCE IN WHICH TO CONDUCT VOCATIONAL EDUCATION

(INTERVIEWEE GROUP)

TYPE OF SCHOOL	NUMBER OF RATINGS 1st	2nd	3rd	4th	5th	WEIGHTED SCORE	COMPARATIVE RANK
UNIVERSITY OR COLLEGE	28	1	5	2	3	166	1
PRIVATE BUSINESS COLLEGE	0	5	2	12	8	58	5
PRIVATE TRADE SCHOOLS	5	5	9	7	6	92	4
JUNIOR OR COMMUNITY COLLEGES	10	20	2	2	1	131	2
HIGH SCHOOL VOCATIONAL EDUCATION SCHOOLS	3	16	13	2	6	128	3

(QUESTIONNAIRE GROUP)

TYPE OF SCHOOL	NUMBER OF RATINGS 1st	2nd	3rd	4th	5th	WEIGHTED SCORE	COMPARATIVE RANK
UNIVERSITY OR COLLEGE	8	3	2	1	2	64	1
PRIVATE BUSINESS COLLEGE	0	2	0	3	2	16	5
PRIVATE TRADE SCHOOLS	5	2	0	1	1	36	3
JUNIOR OR COMMUNITY COLLEGES	1	1	4	1	0	23	4
HIGH SCHOOL VOCATIONAL EDUCATION SCHOOLS	4	3	5	1	0	49	2

QUESTION NUMBER 10

If no vocational education facilities exist in a community you are investigating for a possible plant location, which of the following responses apply? (circle the letter in front of each correct statement):

a. Our company will not consider locating a plant in any community which does not have vocational facilities and programs adequate to meet our training needs.

b. Our company will accept a commitment by a state or local Board of Education to provide facilities and programs where they do not presently exist.

c. Our company will look to other agencies to supply the required occupational training programs where neither a school exists nor a commitment can be obtained from vocational educators.

d. Where no vocational training program exists, we will provide our own training.

e. Where no vocational training programs exist in a community, we ask the Employment Service, Local Office, to help recruit a trained work force from outside the area.

INTERVIEWEE AND QUESTIONNAIRE INFORMATION: NONE GIVEN

TABLES NUMBER 34, 35, and 36 EXPLANATION

All three tables relate to information obtained from Question Number 10.

Table Number 34 compares responses according to the number of employees of the various manufacturing companies.

Table Number 35 makes a comparison of the manufacturing companies of the seven states.

Table Number 36 makes a comparison between the different manufacturing categories.

POPULATION TABLES NUMBER 34, 35, and 36

In the Interviewee Group, 72 out of 116 respondents answered the question.

In the Questionnaire Group, 40 out of 90 respondents answered the question.

TABLE NUMBER 34 ANALYSIS OF DATA

The factor receiving the greatest number of responses from both the Interviewee Group and the Questionnaire Group was that where no vocational education facilities existed, the company would provide their own training.

The same two electronics companies that responded earlier in the questionnaire that they would not locate a plant where vocational education did not exist, reaffirmed that position, as indicated on the table.

TABLE NUMBER 35 ANALYSIS OF DATA

There was some variation among states in factors chosen. However, in all cases the most preferred statement was that the companies would provide their own training where no vocational education program existed. One exception to this was the group interviewed from Nevada, wherein they indicated a preference of using the employment service in recruitment.

TABLE NUMBER 36 ANALYSIS OF DATA

The same factor, to do their own training in lieu of vocational education, was preferred by all the manufacturing categories.

TABLE NUMBER 34

ALTERNATE FACTORS CONSIDERED IN LIEU OF VOCATIONAL EDUCATION FACILITIES BY NUMBER OF EMPLOYEES

(INTERVIEWEE GROUP)

	NUMBER OF RESPONSES			
SELECTION FACTORS	1-100 Employees	101-1000 Employees	Over 1000 Employees	TOTALS
WILL NOT LOCATE WHERE A VOCATIONAL SCHOOL DOES NOT EXIST	0	0	2	2
WILL ACCEPT A COMMITTMENT IN LIEU OF A SCHOOL	24	12	3	39
WILL LOOK TO OTHER AGENCIES TO PROVIDE TRAINING	33	15	1	49
WILL CONDUCT OWN TRAINING PROGRAM	49	15	3	67
WILL USE EMPLOYMENT SERVICE IN RECRUITMENT	28	11	3	42
	(QUESTIONNAIRE GROUP)			
WILL NOT LOCATE WHERE A VOCATIONAL SCHOOL DOES NOT EXIST	0	0	0	0
WILL ACCEPT A COMMITTMENT IN LIEU OF A SCHOOL	8	4	0	12
WILL LOOK TO OTHER AGENCIES TO PROVIDE TRAINING	5	3	1	9
WILL CONDUCT OWN TRAINING PROGRAM	13	6	1	20
WILL USE EMPLOYMENT SERVICE IN RECRUITMENT	4	1	0	5

TABLE NUMBER 35

ALTERNATE FACTORS CONSIDERED IN LIEU OF VOCATIONAL EDUCATION FACILITIES

RESPONSES BY STATES

(INTERVIEWEE GROUP)

ALTERNATE FACTORS	COLORADO	NEW MEXICO	ARIZONA	NEVADA	IDAHO	UTAH	WYOMING	TOTALS
WILL NOT LOCATE WHERE A VOCATIONAL SCHOOL DOES NOT EXIST	0	0	1	0	0	1	0	2
WILL ACCEPT A COMMITTMENT IN LIEU OF A SCHOOL	12	5	10	3	1	7	1	39
WILL LOOK TO OTHER AGENCIES TO PROVIDE TRAINING	5	10	13	9	1	11	0	49
WILL CONDUCT OWN TRAINING PROGRAM	17	12	14	8	2	12	2	67
WILL USE EMPLOYMENT SERVICE IN RECRUITMENT	4	5	12	12	0	9	0	42
(QUESTIONNAIRE GROUP)								
WILL NOT LOCATE WHERE A VOCATIONAL SCHOOL DOES NOT EXIST	0	0	0	0	0	0	0	0
WILL ACCEPT A COMMITTMENT IN LIEU OF A SCHOOL	4	0	2	0	0	6	0	12
WILL LOOK TO OTHER AGENCIES TO PROVIDE TRAINING	1	0	1	0	0	6	0	9
WILL CONDUCT OWN TRAINING PROGRAM	6	0	0	1	1	10	1	20
WILL USE EMPLOYMENT SERVICE IN RECRUITMENT	1	0	0	1	0	3	0	5

TABLE NUMBER 36

ALTERNATE FACTORS CONSIDERED IN LIEU OF VOCATIONAL EDUCATION FACILITIES

RESPONSES BY MANUFACTURING CATEGORY

(INTERVIEWEE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	WILL NOT LOCATE WHERE NO VOCATIONAL EDUCATION EXISTS	WILL ACCEPT COMMITTMENT	WILL LOOK TO OTHER AGENCIES TO PROVIDE NECESSARY TRAINING	WILL CONDUCT OWN TRAINING	WILL USE EMPLOYMENT SERVICE IN RECRUITMENT
ELECTRONIC-ELECTRICAL AND REFRIGERATION	2	15	19	26	17
METAL FABRICATION AND PLATING	0	0	0	0	2
MACHINE SHOP PRODUCTS	0	3	7	10	6
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	0	4	2	6	1
CLOTHING	0	4	4	3	3
PLASTICS-RUBBER PRODUCTS SYNTHETICS-PAPER-MAPS	0	3	4	7	4
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	0	4	4	5	2
MOBILE EQUIPMENT AND MACHINERY	0	4	9	8	7
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	0	2	0	2	0
TOTALS	2	39	49	67	42

TABLE NUMBER 36 (CONT.)

ALTERNATE FACTORS CONSIDERED IN LIEU OF VOCATIONAL EDUCATION FACILITIES

RESPONSES BY MANUFACTURING CATEGORY

(QUESTIONNAIRE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	WILL NOT LOCATE WHERE NO VOCATIONAL EDUCATION EXISTS	WILL ACCEPT COMMITTMENT	WILL LOOK TO OTHER AGENCIES TO PROVIDE NECESSARY TRAINING	WILL CONDUCT OWN TRAINING	WILL USE EMPLOYMENT SERVICE IN RECRUITMENT
ELECTRONIC-ELECTRICAL AND REFRIGERATION	0	6	5	8	2
METAL FABRICATION AND PLATING	0	1	0	1	1
MACHINE SHOP PRODUCTS	0	0	0	0	0
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	0	1	0	3	1
CLOTHING	0	3	2	1	0
PLASTICS-RUBBER PRODUCTS SYNTHETICS-PAPER-MAPS	0	0	0	2	0
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	0	0	0	2	0
MOBILE EQUIPMENT AND MACHINERY	0	0	2	3	1
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	0	1	0	0	0
TOTALS	0	12	9	20	5

QUESTION NUMBER 11

Do your company officials secure a commitment from vocational schools of their willingness to, and ability to, train workers for your company prior to selecting your plant site? Yes No Sometimes (circle correct response(s)

INTERVIEWEE AND QUESTIONNAIRE INFORMATION: NONE GIVEN

TABLES NUMBER 37 AND 38 EXPLANATION

Table Number 37 and Table Number 38 relate to the answers received from Question Number 11. Table Number 37 indicates the responses of the Interviewee Group, and Table Number 38 indicates the responses of the Questionnaire Group.

The percentage figures on both tables are figured by dividing the number who answered the question into the number of manufacturing companies who answered Yes or Sometimes.

TABLE NUMBER 37 AND TABLE NUMBER 38 POPULATION

NUMBER OF RESPONDENTS (INTERVIEWEE GROUP)	116
NUMBER OF RESPONDENTS WHO ANSWERED THE QUESTION	70
PERCENTAGE OF RESPONDENTS WHO ANSWERED THE QUESTION	60%
NUMBER OF RESPONDENTS (QUESTIONNAIRE GROUP)	90
NUMBER OF RESPONDENTS WHO ANSWERED THE QUESTION	34
PERCENTAGE OF RESPONDENTS WHO ANSWERED THE QUESTION	38%

TABLE NUMBER 37 AND TABLE NUMBER 38 ANALYSIS OF DATA

It was determined that 27% of the Interviewee Group secured a commitment from the vocational school people to indicate their willingness to meet part of their company's training needs as compared to 44% of the Questionnaire Group securing the same commitment.

TABLE NUMBER 37

COMMITTMENTS FROM VOCATIONAL SCHOOLS PRIOR TO PLANT SITE SELECTION

(INTERVIEW GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	RESPONSES YES	 NO	 SOMETIMES	PERCENTAGE OF RESPONDENTS WHO INDICATED THEY SECURED COMMITTMENTS
ELECTRONIC-ELECTRICAL AND REFRIGERATION	5	21	3	28%
METAL FABRICATION AND PLATING	0	1	0	0%
MACHINE SHOP PRODUCTS	1	8	1	20%
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	0	1	0	0%
CLOTHING	1	3	0	25%
PLASTICS-RUBBER PRODUCTS SYNTHETICS-PAPER-MAPS	1	6	0	14%
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	1	4	3	50%
MOBILE EQUIPMENT AND MACHINERY	0	5	1	17%
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	2	2	0	50%
TOTALS	11	51	8	27%

TABLE NUMBER 38

COMMITTMENTS FROM VOCATIONAL SCHOOLS PRIOR TO PLANT SITE SELECTION

(QUESTIONNAIRE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	RESPONSES YES	 NO	 SOMETIMES	PERCENTAGE OF RESPONDENTS WHO INDICATED THEY SECURED COMMITTMENTS
ELECTRONIC-ELECTRICAL AND REFRIGERATION	1	6	3	40%
METAL FABRICATION AND PLATING	2	1	1	75%
MACHINE SHOP PRODUCTS	1	0	0	100%
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	0	2	0	0%
CLOTHING	2	1	2	80%
PLASTICS-RUBBER PRODUCTS SYNTHETICS-PAPER-MAPS	0	2	0	0%
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	0	1	0	0%
MOBILE EQUIPMENT AND MACHINERY	1	5	2	38%
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	0	1	0	0%
TOTALS	7	19	8	44%

QUESTION NUMBER 12

Do your company officials visit the vocational facilities of a community prior to selecting their plant site? Yes No Sometimes
(circle correct response(s)

INTERVIEWEE AND QUESTIONNAIRE INFORMATION: NONE GIVEN

TABLE NUMBER 39 and TABLE NUMBER 40 EXPLANATION

Both tables treat the information received from Question Number 12.

Table Number 39 relates to the Interviewee Group, and Table Number 40 relates to the Questionnaire Group.

The percentage figures listed on both charts are obtained by dividing the number who answered the question into the number who answered Yes or Sometimes.

TABLE NUMBER 39 AND TABLE NUMBER 40 POPULATION

In the Interviewee Group, 74 out of 116 respondents answered the question.

In the Questionnaire Group, 34 out of 90 respondents answered the question.

The percentage of respondents who indicated that they visit vocational schools prior to selecting their plant site was somewhat higher in the Questionnaire Group than in the Interviewee Group. This could be answerable in that when the Yes and Sometimes answers are related to the total group, instead of just those who answered the question, the percentage figures get much closer. Figures then for the two groups would be 25% for the Interviewee Group and 24% for the Questionnaire Group. In any event, considering the whole population of both groups, only 25% visit vocational schools while they are in the selection process.

TABLE NUMBER 39

VISITS TO VOCATIONAL SCHOOLS WHILE IN THE PLANT SITE SELECTION PROCESS

(INTERVIEWEE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	RESPONSES			PERCENTAGE OF RESPONDENTS WHO INDICATED THAT THEY VISITED VOCATIONAL SCHOOLS
	YES	NO	SOMETIMES	
ELECTRONIC-ELECTRICAL AND REFRIGERATION	10	16	3	45%
METAL FABRICATION AND PLATING	1	0	0	100%
MACHINE SHOP PRODUCTS	3	5	1	44%
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	0	6	1	14%
CLOTHING	1	3	0	25%
PLASTICS-RUBBER PRODUCTS-SYNTHETICS-PAPER-MAPS	1	7	0	13%
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	0	5	1	17%
MOBILE EQUIPMENT AND MACHINERY	3	3	2	63%
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	1	1	0	50%
TOTALS	20	46	8	38%

TABLE NUMBER 40

VISITS TO VOCATIONAL SCHOOLS WHILE IN THE PLANT SITE SELECTION PROCESS

(QUESTIONNAIRE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	RESPONSES			PERCENTAGE OF RESPONDENTS WHO INDICATED THAT THEY VISITED VOCATIONAL SCHOOLS
	YES	NO	SOMETIMES	
ELECTRONIC-ELECTRICAL AND REFRIGERATION	4	4	3	64%
METAL FABRICATION AND PLATING	2	0	2	100%
MACHINE SHOP PRODUCTS	1	0	0	100%
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	0	2	1	33%
CLOTHING	2	0	1	100%
PLASTICS-RUBBER PRODUCTS-SYNTHETICS-PAPER-MAPS	1	2	0	33%
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	0	1	0	0%
MOBILE EQUIPMENT AND MACHINERY	3	1	3	86%
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	0	1	0	0%
TOTALS	13	11	10	68%

QUESTION NUMBER 13

Are brochures indicating the various vocational educational facilities and programs available in a community helpful to your company in selecting a plant site? Yes No Sometimes (circle correct response(s)

INTERVIEWEE INFORMATION

Brochures were explained to mean school catalogs as well as phamplets and brochures which tell about the school.

Community was explained to mean any area the company might be investigating, whether it be a city or a county.

QUESTIONNAIRE INFORMATION: NONE GIVEN

TABLES NUMBER 41 and 42 EXPLANATION

Both Tables relate to Question Number 13. Table Number 41 treats the information received from the Interviewee group, and Table Number 42 treats the information received from the Questionnaire Group.

The percentage figures are determined by again dividing the number who answered the question into the number who answered Yes or Sometimes.

TABLE NUMBER 41 AND TABLE NUMBER 42 POPULATION

All of the 116 respondents in the Interviewee Group answered the question.

In the Questionnaire Group, 67 out of 90 respondents answered the question.

TABLE NUMBER 41 AND TABLE NUMBER 42 ANALYSIS OF DATA

Approximately 70% of both groups responded favorably to the value of brochures indicating available vocational education as being helpful in their selection process.

TABLE NUMBER 41

COMMUNITY BROCHURES INDICATING AVAILABLE VOCATIONAL EDUCATION AS AIDS IN PLANT SITE SELECTION

(INTERVIEWEE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	RESPONSES			PERCENTAGE OF RESPONDENTS WHO INDICATED COMMUNITY BROCHURES WERE HELPFUL
	YES	NO	SOMETIMES	
ELECTRONIC-ELECTRICAL AND REFRIGERATION	31	6	0	84%
METAL FABRICATION AND PLATING	2	1	0	67%
MACHINE SHOP PRODUCTS	11	4	0	73%
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	7	5	1	62%
CLOTHING	4	2	1	71%
PLASTICS-RUBBER PRODUCTS SYNTHETICS-PAPER-MAPS	6	4	0	60%
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	7	4	0	64%
MOBILE EQUIPMENT AND MACHINERY	7	5	1	62%
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	3	3	1	57%
TOTALS	78	34	4	71%

TABLE NUMBER 42

COMMUNITY BROCHURES INDICATING AVAILABLE VOCATIONAL EDUCATION AS AIDS IN PLANT SITE SELECTION

(QUESTIONNAIRE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	RESPONSES YES	NO	SOMETIMES	PERCENTAGE OF RESPONDENTS WHO INDICATED COMMUNITY BROCHURES WERE HELPFUL
ELECTRONIC-ELECTRICAL-AND REFRIGERATION	13	6	8	78%
METAL FABRICATION AND PLATING	7	1	1	89%
MACHINE SHOP PRODUCTS	--	--	--	--
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	1	4	1	33%
CLOTHING	2	2	1	60%
PLASTICS-RUBBER PRODUCTS SYNTHETICS-PAPER-MAPS	4	4	1	56%
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	0	1	0	0%
MOBILE EQUIPMENT AND MACHINERY	3	2	4	78%
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	1	0	0	100%
TOTALS	31	20	16	70%

QUESTION NUMBER 14

Are brochures indicating the various vocational education facilities and programs available in a state helpful to your company in selecting a plant site? Yes No Sometimes (circle correct response(s)

INTERVIEWEE INFORMATION

The same information about brochures, given with regard to Question Number 13, was given again, if requested.

QUESTIONNAIRE INFORMATION: NONE GIVEN

TABLE NUMBER 43 AND TABLE NUMBER 44 EXPLANATION

Both tables treat information received from Question Number 14.

Table Number 43 pertains to the Interviewee Group, and Table Number 44 relates to the Questionnaire Group.

The percentage figures are determined in the same manner as in Tables Number 41 and 42.

TABLE NUMBER 43 AND TABLE NUMBER 44 POPULATION

NUMBER OF RESPONDENTS (INTERVIEWEE GROUP)	116
NUMBER OF RESPONDENTS WHO ANSWERED THE QUESTION	103
PERCENTAGE OF RESPONDENTS WHO ANSWERED THE QUESTION	89%
NUMBER OF RESPONDENTS (QUESTIONNAIRE GROUP)	90
NUMBER OF RESPONDENTS WHO ANSWERED THE QUESTION	65
PERCENTAGE OF RESPONDENTS WHO ANSWERED THE QUESTION	72%

TABLE NUMBER 43 AND TABLE NUMBER 44 ANALYSIS OF DATA

Two-thirds of the Questionnaire Group, and nearly three-fourths of the Interviewee Group indicated that state brochures on vocational education were helpful in the selection process.

Ninety-Four per cent of the electronic group interviewed indicated that state brochures were helpful. This was even a higher percentage than for community brochures.

TABLE NUMBER 43

STATE BROCHURES INDICATING AVAILABLE VOCATIONAL EDUCATION AS AIDS IN THE PLANT SITE SELECTION PROCESS

(INTERVIEWEE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	RESPONSES			PERCENTAGE OF RESPONDENTS WHO INDICATED STATE BROCHURES WERE AN AID
	YES	NO	SOMETIMES	
ELECTRONIC-ELECTRICAL AND REFRIGERATION	27	2	2	94%
METAL FABRICATION AND PLATING	2	1	0	67%
MACHINE SHOP PRODUCTS	10	5	0	67%
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	7	6	0	54%
CLOTHING	4	1	1	83%
PLASTICS-RUBBER PRODUCTS SYNTHETICS-PAPER-MAPS	4	6	0	40%
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	7	1	0	88%
MOBILE EQUIPMENT AND MACHINERY	7	4	0	64%
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	2	3	1	50%
TOTALS	70	29	4	72%

TABLE NUMBER 44

STATE BROCHURES INDICATING AVAILABLE VOCATIONAL EDUCATION AS AIDS IN THE PLANT SITE SELECTION PROCESS

(QUESTIONNAIRE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	RESPONSES			PERCENTAGE OF RESPONDENTS WHO INDICATED STATE BROCHURES WERE AN AID
	YES	NO	SOMETIMES	
ELECTRONIC-ELECTRICAL AND REFRIGERATION	8	8	8	67%
METAL FABRICATION AND PLATING	3	3	3	67%
MACHINE SHOP PRODUCTS	0	0	0	--
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	2	4	0	33%
CLOTHING	3	1	1	80%
PLASTICS-RUBBER PRODUCTS SYNTHETICS-PAPER-MAPS	4	3	1	63%
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	0	1	1	50%
MOBILE EQUIPMENT AND MACHINERY	4	3	3	70%
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	1	0	0	100%
TOTALS	25	23	17	65%

QUESTION NUMBER 15

In any community advertising brochures you may have received while investigating plant sites, were there references made to vocational education facilities and programs? Yes No Sometimes
(circle correct response(s)

INTERVIEWEE AND QUESTIONNAIRE INFORMATION: NONE GIVEN

TABLE NUMBER 45 AND TABLE NUMBER 46 EXPLANATION

Both tables relate to Question Number 15. One table presents information related to the question from the Interviewee Group, and the other from the Questionnaire Group.

The percentage figures are determined by dividing the number of companies answering the question into the number who answered Yes or Sometimes.

TABLE NUMBER 45 AND TABLE NUMBER 46 POPULATION

NUMBER OF RESPONDENTS (INTERVIEWEE GROUP)	116
NUMBER OF RESPONDENTS WHO ANSWERED THE QUESTION	107
PERCENTAGE OF RESPONDENTS WHO ANSWERED THE QUESTION	92%
NUMBER OF RESPONDENTS (QUESTIONNAIRE GROUP)	90
NUMBER OF RESPONDENTS WHO ANSWERED THE QUESTION	56
PERCENTAGE OF RESPONDENTS WHO ANSWERED THE QUESTION	62%

TABLE NUMBER 45 AND TABLE NUMBER 46 ANALYSIS OF DATA

Approximately two-thirds of the Questionnaire Group who answered the question gave an affirmative answer. This differs from the Interviewee Group, where only one-third indicated they had received information about vocational education through community brochures. The difference, again, between the Interviewee Group and the Questionnaire Group can be answered in part that when the total respondents in each group are considered, the percentage who responded _Yes_ or _Sometimes_ is nearly the same.

Therefore, one can draw an inference in that those executing the questionnaire and failing to answer the question would be, perhaps, a _No_ response.

TABLE NUMBER 45

COMMUNITY EFFORTS TO ADVERTISE VOCATIONAL-TECHNICAL EDUCATION AS A FACTOR IN SOLICITING MANUFACTURING INDUSTRY

(INTERVIEWEE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	RESPONSES YES	NO	SOMETIMES	PERCENTAGE OF RESPONDENTS WHO INDICATED BROCHURES CONTAINED VOCATIONAL EDUCATION INFORMATION
ELECTRONIC-ELECTRICAL AND REFRIGERATION	12	21	1	38%
METAL FABRICATION AND PLATING	0	3	0	0%
MACHINE SHOP PRODUCTS	3	12	0	20%
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	3	10	0	23%
CLOTHING	3	3	0	50%
PLASTICS-RUBBER PRODUCTS SYNTHETICS PAPER-MAPS	3	7	0	30%
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	3	6	0	33%
MOBILE EQUIPMENT AND MACHINERY	6	5	0	55%
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	2	3	1	50%
TOTALS	35	70	2	35%

TABLE NUMBER 46

COMMUNITY EFFORTS TO ADVERTISE VOCATIONAL-TECHNICAL EDUCATION AS A FACTOR IN SOLICITING MANUFACTURING INDUSTRY

(QUESTIONNAIRE GROUP)

PRODUCT TYPE OR MANUFACTURING CATEGORY	RESPONSES			PERCENTAGE OF RESPONDENTS WHO INDICATED BROCHURES CONTAINED VOCATIONAL EDUCATION INFORMATION
	YES	NO	SOMETIMES	
ELECTRONIC-ELECTRICAL AND REFRIGERATION	10	5	7	77%
METAL FABRICATION AND PLATING	3	1	3	86%
MACHINE SHOP PRODUCTS	--	--	--	--%
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	1	4	1	33%
CLOTHING	3	1	1	80%
PLASTICS-RUBBER PRODUCTS SYNTHETICS-PAPER-MAPS	0	4	1	20%
WOOD PRODUCTS AND CONSTRUCTION PRODUCTS	0	1	0	0%
MOBILE EQUIPMENT AND MACHINERY	4	3	2	67%
HEALTH EQUIPMENT AND SUPPLIES-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	0	1	0	0%
TOTALS	21	20	15	64%

QUESTION NUMBER 16

Indicate the importance you place upon assistance from the following people or organizations in helping you select a plant site:

ORGANIZATIONS	VERY IMPORTANT	IMPORTANT	UNIMPORTANT
CHAMBER OF COMMERCE			
MANUFACTURING ASSOCIATIONS			
VOCATIONAL SCHOOL EDUCATORS			
EMPLOYMENT SERVICE			
ALLIED BUSINESS ASSOCIATION			
LOCAL GOVERNMENT OFFICIALS			
STATE GOVERNMENT OFFICIALS			
NATIONAL GOVERNMENT OFFICIALS			
LABOR ORGANIZATIONS			
UNIVERSITY EDUCATORS			
OTHERS (INDICATE)			

INTERVIEWEE INFORMATION

U. S. Employment Service was explained to mean the vast network of employment agencies accross the United States.

Allied Business Association was explained to include help from Banks, Utilities, and those with other symbiotic or non-symbiotic relationships.

QUESTIONNAIRE INFORMATION: NONE GIVEN

TABLE NUMBER 47 EXPLANATION

The weighted scores were determined by assigning a rating of 2 for each Very Important response, a rating of 1 for each Important response, and 0 for each unimportant response.

TABLE NUMBER 47 POPULATION

In the Interviewee Group, all 116 answered the question.

In the Questionnaire Group, 70 out of 90 answered the question.

TABLE NUMBER 47 ANALYSIS OF DATA

The Interviewee Group placed the greatest importance upon help from Allied Business Association, followed by Chambers of Commerce and Local Government Officials.

The Questionnaire Group placed the greatest importance upon help from Chambers of Commerce, followed by Local Government Officials and the Employment Service. Perhaps one reason this group didn't rate Allied Business higher was because of a lack of explanation that banks and utilities were included.

Vocational Educators were rated Number 8 in importance by the Interviewee Group and Number 4 by the Questionnaire Group.

TABLE NUMBER 47

IMPORTANCE PLACED UPON AID FROM CERTAIN ORGANIZATIONS IN THE SELECTION PROCESS

(INTERVIEWEE GROUP)

ORGANIZATION	NUMBER OF VERY IMPORTANT RESPONSES	NUMBER OF IMPORTANT RESPONSES	NUMBER OF UNIMPORTANT RESPONSES	WEIGHTED SCORE	COMPARATIVE RANK
ALLIED BUSINESS ASSOCIATION	30	22	61	82	1
CHAMBER OF COMMERCE	13	54	46	80	2
LOCAL GOVERNMENT OFFICIALS	16	33	65	65	3
UNIVERSITY EDUCATORS	9	23	82	41	4
STATE GOVERNMENT OFFICIALS	8	23	88	39	5
NATIONAL GOVERNMENT OFFICIALS	11	15	83	37	6
MANUFACTURING ASSOCIATION	3	22	82	28	7
VOCATIONAL SCHOOL EDUCATORS	4	19	90	27	8
U. S. EMPLOYMENT SERVICE	4	13	97	21	9
LABOR ORGANIZATIONS	3	10	102	16	10
(QUESTIONNAIRE GROUP)					
ALLIED BUSINESS ASSOCIATION	12	18	40	42	7
CHAMBER OF COMMERCE	19	29	17	67	1
LOCAL GOVERNMENT OFFICIALS	21	24	24	66	2
UNIVERSITY EDUCATORS	12	17	39	41	8
STATE GOVERNMENT OFFICIALS	9	27	30	45	6
NATIONAL GOVERNMENT OFFICIALS	8	12	45	28	9
MANUFACTURING ASSOCIATION	11	24	33	46	5
VOCATIONAL SCHOOL EDUCATORS	9	32	27	50	4
U. S. EMPLOYMENT SERVICE	15	22	32	52	3
LABOR ORGANIZATIONS	5	11	51	21	10

TABLE NUMBER 48 EXPLANATION

The same explanation holds for Table Number 48 as is explanied in Table Number 49.

TABLE NUMBER 48 ANALYSIS OF DATA

Chambers of Commerce were rated highest by most manufacturing categories.

Clothing rated the U. S. Employment Service and Local Government as the most preferred.

TABLE NUMBER 49 EXPLANATION

Information upon this table was obtained from answers to Question Number 16, and relates to the Interviewee Group.

The table subdivides into the nine manufacturing categories and places a rank in importance upon each of the organizations as aids in helping select their plant sites.

The weighted scores are determined by assigning a rating of 2 on each Very Important response, 1 on each Important response, and 0 on any Unimportant response. Comparative ranks are determined then on the highest to lowest weighted score.

TABLE NUMBER 49 ANALYSIS OF DATA (INTERVIEWEE GROUP)

The following manufacturing categories rated Chambers of Commerce as Number 1 in importance: Electronic-Electrical-Refrigeration, Foods-Feeds-Minerals-Chemicals and Fertilizers, Clothing, Plastics-Rubber Products-Synthetics-Paper-Maps, Health Equipment-Jewelry-Hobby and Recreational Equipment and Supplies.

The following manufacturing categories rated Allied Business Association as Number 1 in importance: Metal Fabrication and Plating, Machine Shop Products, Wood Products and Construction Products, Mobile Equipment and Machinery, and Health Equipment- Jewelry-Hobby and Recreational Equipment and Supplies.

Clothing category rated the Employment Service and Vocational Education as Very Important as aids in their plant site selection.

TABLE NUMBER 48

IMPORTANCE PLACED UPON AID FROM CERTAIN ORGANIZATIONS

IN THE SELECTION PROCESS

(BY PRODUCT TYPE OR MANUFACTURING CATEGORY)

*WEIGHTED SCORES AND *COMPARATIVE RANKS (QUESTIONNAIRE GROUP)

PRODUCT TYPE	CHAMBER OF COMMERCE		MANUFACTURING ASSOCIATION		VOC. SCHOOL EDUCATORS		U.S. EMPLOY-MENT SERVICE		ALLIED BUS. ASSOCIATION		LOCAL GOVT.		STATE GOVT.		NTNL. GOVT.		LABOR		UNIV. EDUCATORS	
	WS	CR	WS	CR	WS	CR	WS	CR	WS	CR	WS	CR	WS	CR	WS	CR	WS	CR	WS	CR
ELECTRONIC ELECTRICAL REFRIGERATION	27	1	16	8	20	3	17	7	20	3	26	2	20	3	10	9	9	10	19	6
METAL FABRICATION & PLATING	11	1	11	1	6	5	6	5	6	5	11	1	7	4	5	8	3	10	4	9
MACHINE SHOP PRODUCTS	(NONE RATED IMPORTANT OR VERY IMPORTANT)																			
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	7	1	2	8	2	8	6	3	5	4	7	1	5	4	4	6	2	8	4	6
CLOTHING	2	7	4	4	2	7	8	1	0	0	8	1	5	3	4	4	0	0	3	6
PLASTICS-RUBBER PRODUCTS-SYNTHETICS PAPERS-MAPS	11	1	3	6	9	2	8	3	7	4	3	6	1	10	2	8	2	8	4	5
WOOD AND CONSTRUCTION PRODUCTS	(NONE RATED IMPORTANT OR VERY IMPORTANT)																			
MOBILE EQUIPMENT AND MACHINERY	9	2	8	3	5	7	7	4	5	7	11	1	6	6	4	10	5	7	7	4
HEALTH EQUIPMENT JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	0	0	0	0	0	0	0	0	0	0	0	0	1	2	2	1	0	0	0	0

* WS * CR

TABLE NUMBER 49

IMPORTANCE PLACED UPON AID FROM CERTAIN ORGANIZATIONS

IN THE SELECTION PROCESS
(BY PRODUCT TYPE OR MANUFACTURING CATEGORY)

*WEIGHTED SCORES AND *COMPARATIVE RATINGS (INTERVIEWEE GROUP)

PRODUCT TYPE	CHAMBER OF COMMERCE		MANUFACTURING ASSOCIATION		VOC. SCHOOL EDUCATORS		U.S. EMPLOYMENT SERVICE		ALLIED BUS. ASSOCIATION		LOCAL GOVT.		STATE GOVT.		NTNL. GOVT.		LABOR		UNIV. EDUCATORS	
	WS	CR	WS	CR	WS	CR	WS	CR	WS	CR	WS	CR	WS	CR	WS	CR	WS	CR	WS	CR
ELECTRONIC ELECTRICAL REFRIGERATION	33	1	15	7	13	8	12	9	30	3	33	1	27	4	20	6	10	10	21	5
METAL FABRICATION & PLATING	1	2	0	0	0	0	0	0	2	1	0	0	0	0	0	0	1	2	1	2
MACHINE SHOP PRODUCTS	10	2	4	5	5	4	4	5	17	1	8	3	3	7	3	7	1	10	2	9
FOODS-FEEDS-MINERALS-CHEMICALS-FERTILIZERS	7	1	0	0	0	0	1	6	5	3	3	5	6	2	4	4	1	6	0	0
CLOTHING	4	1	1	5	3	2	3	2	0	0	2	3	1	5	1	5	0	0	1	5
PLASTICS-RUBBER PRODUCTS-SYNTHETICS PAPER-MAPS	8	1	1	9	3	3	2	5	7	2	2	5	2	5	2	5	0	0	3	3
WOOD AND CONSTRUCTION PRODUCTS	7	3	2	6	2	6	2	6	8	1	8	1	2	6	4	4	3	5	2	6
MOBILE EQUIPMENT AND MACHINERY	8	2	3	5	3	5	0	0	10	1	7	3	3	5	2	8	0	0	7	3
HEALTH EQUIPMENT-JEWELRY-HOBBY AND RECREATIONAL EQUIPMENT AND SUPPLIES	3	1	1	6	1	6	0	0	3	1	2	3	0	0	2	3	0	0	2	3

* WS * CR

T. CONCLUSIONS, INFERENCES, AND RECOMMENDATIONS

The following conclusions, inferences, and recommendations are based upon five considerations, namely:

1. The Series of Interviews
2. The Returned Questionnaires
3. A Fortune Survey of Plant Site Selection Factors
4. Other Related Literature
5. Statistical Analysis of 1, 2, and 3 Above.

Conclusions. Many conclusions could have been included, but in the interest of the reader have been minimized to indicate the more important ones. However, no effort has been made to further place any order of importance among the conclusions listed in this report.

Conclusion Number 1. Vocational education is a factor considered by the intermountain manufacturing industry, as they investigate their new plant sites. Many inferences can be drawn to substantiate this conclusion, including:

1. Of 28 different plant site selection factors submitted by the manufacturing industry, vocational education ranks approximately in the middle in degree of importance.
2. Some categories of the manufacturing industry rate vocational education as being more significant as a plant site factor than do other types of manufacturers. Some who place a high degree of importance are:

(a) Clothing Manufacturers who rate vocational education within the 9 most important factors considered.

(b) Metal Fabrication and Plating, wherein the Questionnaire Group rated vocational education Number 5 factor in importance, and the Interviewee Group rated vocational education Number 11.

(c) Electronic-Electrical-Refrigeration, wherein the Questionnaire Group rated Vocational education Number 4 in importance, and the Interviewee Group rated it Number 14.

Some manufacturing categories who place less significance upon vocational education as a factor in the selection process are:

(a) Wood Products and Construction Products, wherein vocational education was not indicated as a significant facter by either the Questionnaire Group or the Interviewee Group.

(b) Foods-Feeds-Minerals-Chemicals-Fertilizers, wherein the Questionnaire Group failed to rate vocational education as a factor, and wherein the Interviewee Group rated vocational education as being Number 16 in importance.

Conclusion Number 2. There is a difference between manufacturers who hire large numbers of employees, and those who employ smaller numbers of employees, in their assessment of vocational education as a plant site selection factor.

Plants who employ more than 100 employees place greater significance upon vocational education. The report substantiates this conclusion, wherein 74% of the companies employing over 100 employees indicated vocational education as a plant site selection factor, as contrasted to 58% of the smaller companies indicating vocational education as a consideration.

Conclusion Number 3. There is a difference from state to state as to the significance that relatively new manufacturing industry, within each state, places upon vocational education as a plant site selection factor.

Perhaps this conclusion will draw "Plaudits" from vocational educators in some states, and "Brick Bats" in other of the seven states. However, this research project does relate to emphasis on a state basis, and bears out this inference.

Two-thirds of the manufacturing industry in four of the seven states rate vocational education as a plant site selection factor, these states being Colorado, Arizona, Nevada, and Utah. Three other states, New Mexico, Idaho, and Wyoming, figure to be only one-half indicating vocational education as a plant site selection factor.

Conclusion Number 4. Some of the manufacturing categories consider vocational education as a significant factor prior to expanding their plant operations. These manufacturing categories are:

1. Clothing Manufacturers, where 73% so indicated.
2. Mobile Equipment and Machinery, where 70% so indicated.
3. Electronics-Electrical-Refrigeration, where 60% so indicated.

Conclusion Number 5. Very few manufacturing companies indicated that a lack of vocational education was a significant enough factor to reject a plant site.

This conclusion is borne out where only three manufacturing companies stated they rejected plant sites due to a lack of vocational education. Two of these were electronic plants employing large numbers of employees, and one was a clothing firm who had four locations in one state, all of which were small plants.

Conclusion Number 6. The closer a vocational school is located to a plant site, the more significant it is as a plant site selection factor. This inference is drawn from the fact that over 90% of the respondents who answered the question, from both the Interviewee Group and the Questionnaire Group, responded that anywhere within a community, county, or within 20 miles, was significant as a plant site selection factor, whereas only one-half of the same Interviewee Group and one-fourth of the Questionnaire Group indicated within 80 miles, or anywhere in the state as being significant.

Conclusion Number 7. Vocational education to train skilled craftsmen, technicians, and semi-skilled workers are very important programs in the eyes of the manufacturing industry who consider vocational education a plant site selection factor. Over three-fourths of both the Interviewee Group and Questionnaire Group indicate this contention to be correct.

Conclusion Number 8. Community attitude towards vocational education is a significant factor to the manufacturing industry who consider vocational education a factor in their plant site selections. Over 90% of these respondents substantiated this conclusion.

Conclusion Number 9. Tools and equipment are important aspects of a vocational education program, as manufacturers consider their plant site selections.

Ninety-Three per cent of the respondents favoring vocational education as a plant site selection factor indicated this to be a correct conclusion.

Conclusion Number 10. In-plant training by vocational educators did not warrant the same degree of importance to the manufacturing industry, as did vocational education at a vocational school.

The survey showed an approximate ratio of 90 to 40 in preference of the vocational school setting.

Conclusion Number 11. In College Credit vs Terminal Credit, we found little basis for one answer as to most preferred.

The Interviewee Group indicated College Credit preference, where the Questionnaire Group indicated terminal credit as being preferred.

Conclusion Number 12. Some vocational school training programs lend themselves to more kinds of manufacturing industry than do others in the selection process.

The five most mentioned kinds of vocational education programs, together with number of times mentioned as a factor in the plant site selection process, are:

1. Machine Shop	58 Mentions
2. Metal Fabrication	44 Mentions
3. Electronics	44 Mentions
4. Business and Secretarial	44 Mentions
5. Electrical	34 Mentions

Conclusion Number 13. In lieu of vocational education, the manufacturing industry looks to other means to fulfill its training needs. The most favored responses were:

1. Will do their own training	67 Mentions
2. Will look to other agencies to help in their training	67 Mentions
3. Will look to employment service to recruit skilled and technical labor force	42 Mentions
4. Will accept a commitment from Vocational Education schools to train labor force	39 Mentions

Conclusion Number 14. Conclusion Number 13 is approximately the same regardless of the size of business, or from which of the seven states the manufacturing company is located.

Conclusion Number 15. Less than 50% of those companies who considered vocational education a plant site selection factor went to the extent of securing a commitment to train their workers.

This is borne out in that only 27% of the Interviewee Group and 44% of the Questionnaire Group secured commitments.

Conclusion Number 16. Approximately one-fourth of the respondents visited vocational schools in consideration of selecting their plant sites.

Conclusion Number 17. Public supported universities, colleges, community colleges, junior colleges, high schools, and trade-technical institutes are preferred over private schools as factors in the plant site selection process, the most preferred being universities and colleges, followed by community colleges, junior colleges, and high schools with strong vocational programs.

Conclusion Number 18. Brochures indicating vocational education available in the community are helpful to manufactures in their plant site selection process. Approximately 70% of all respondents reacted favorably to this conclusion.

Conclusion Number 19. Brochures indicating vocational education available in a state are slightly more helpful to the plant site selector than are the community brochures.

Conclusion Number 20. An insufficient number of brochures, indicating available vocational education, are prepared and placed in the hands of plant site selectors. Only one-third of the Interviewee Group indicated they had received advertising brochures concerning vocational education, while investigating plant sites. Contrast this with the 70% who indicated brochures as being helpful, and you have the basis for this conclusion.

Conclusion Number 21. Plant site selectors solicit aid from organizations, government, and education, in the selection process. Also, they have a preference based upon experience in helping select the plant site.

Great importance was placed upon aid from allied business associations, including banks, utilities, companies with a symbiotic relationship, chambers of commerce, and local government officials.

Conclusion Number 22. Vocational education can exert more effort in aiding plant site selectors in selecting their plant sites.

The Interviewee Group rated vocational education Number 8 out of 10 considerations.

Conclusion Number 23. The states which have less new manufacturing industry tend to rate vocational education lower as a plant site selection factor. This might be subject for more in-depth study by some researcher.

Perhaps emphasis should be placed upon plant site selection factors other than vocational education, in the conclusions, because this, too, was a substantial part of the survey.

Conclusion Number 24. The following six factors are considered most important in the plant site selection process of the manufacturing industry locating in the Intermountain States:

FACTOR	NUMBER OF TIMES MENTIONED
Labor Supply	128
Ground Transportation	75
Market	73
Land	60
Residence of Owners	50
Available Buildings	49

The following six factors are considered most important in the plant site selection process which takes place in the Intermountain States, when a coupling process is made of closely related factors:

#1. Labor Supply and Labor Relations
#2. Ground and Air Transportation
#3. Available Land and Buildings
#4. Market and Proximity to Market
#5. *College Education and Vocational Education*
#6. Allied Business and Federal Business Relations

These conclusions can be substantiated by the following tables.

Considering all respondents' selection of their #1 rated factor in importance in the selection process, the following rankings would be evident:

FACTOR	NUMBER OF 1ST PLACE MENTIONS
a. Residence of Owners	27
b. Labor Supply	25
c. Market	17
d. Available Land	16
e. Allied Business Relations	12
f. Equidistant from Market	12

When closely related factors are coupled, the ratings appear as follows:

FACTOR	NUMBER OF 1ST PLACE MENTIONS
a. Labor Supply and Labor Relations	32
b. Market and Equidistant to Market	29
c. Residence of Owners	27
d. Available Land & Buildings	27
e. Allied Business and Federal Business Relations	22
f. Air and Ground Transportation	15

When weighted scores are applied to single factors we have:

FACTOR	WEIGHTED SCORES
1. Labor Supply	807
2. Market	544
3. Ground Transportation	527
4. Available Land	465
5. Buildings	350
6. Air Transportation	276

When a coupling process is applied to weighted scores we have:

FACTOR	WEIGHTED SCORES
#1. Labor Supply & Labor Relations	1021
#2. Available Land & Buildings	815
#3. Ground & Air Transportation	803
#4. Market & Proximity to Market	782
#5. Allied & Federal Business Relations	448
#6. College Education & Vocational Education	376

Conclusion Number 25. It is concluded that tables such as are included in the report are the most meaningful and descriptive statistics which can be applied to the report.

It is further concluded that rank order correlations and chi square, when applied to the statistical information contained in the report, tell a meaningless and distorted story.*

When one considers the number of first place mentions, weighted scores, or coupled closely related factors, the rank order changes. One rank correlation is included, comparing selection factors of the Interviewee Group with the Questionnaire Group:

FACTOR	RANK INTERVIEWEE GROUP	RANK QUESTIONNAIRE GROUP	d	d^2
Available Land and Buildings	1	4	3	9
Labor Supply and Labor Relations	2	1	-1	1
Market and Proximity to Market	3	3	0	0
Ground and Air Transportation	4	2	-2	4
Raw Materials and Utilities	5	5	0	0
				14

$$r = 1 - \frac{6 \sum_{i=1}^{N} di^2}{N(N^2 - 1)}$$

$$r = 1 - \frac{6(14)}{5(24)}$$

$$r = 1 - \frac{84}{120}$$

$$r = 1 - .70$$

$$4 = \quad .30$$

* .30 equals a positive correlation which could be more significant.

Recommendations. A few recommendations seem important as a result of the study. They are as follows:

1. Vocational educators can be helpful to the manufacturing industry in their plant site selection process by providing brochures about vocational education, both on a state and community basis.

2. Vocational educators can do more to help the team of government officials and business organizations in advancing the cause of their state and community in soliciting manufacturing industry.

3. Some of the businesses recruit trained personnel from everywhere. Therefore, it behooves the vocational school people to advertise their school and to accentuate their efforts in job placement of their students.

4. Someone needs to either prove the Fortune Study correct, or incorrect, as it relates to their projections of the Intermountain West, and especially their rank of the states within the Intermountain West. (See Pages 36-38 of this report for the Fortune Projections.)

APPENDIX

PLANT SITE SELECTION FACTORS

42. AVAILABILITY OF LAND

Included in this category are:

a. Industrial Parks
b. Price of Land
c. Public Land (in some cases)

43. MARKET

Included in this category are:

a. Customer Relations
b. Competition
c. Growth Potential

44. LABOR SUPPLY

Included in this category are:

a. Numbers
b. Skilled, Professional, and Other Trained People

45. LABOR RELATIONS

Included in this category are:

a. Wages
b. Strikes
c. Union Considerations

PLANT SITE SELECTION FACTORS (CONT.)

46. ALLIED BUSINESS RELATIONSHIPS

Included in this category are:

a. Symbiotic Relationships
b. Non-Symbiotic Relationships

47. RELATIONSHIP TO FEDERAL BUSINESS

Included in this category are:

a. Government Plants Using Their Products
b. Symbiotic Relationships
c. Other Non-Symbiotic Relationships

48. RESIDENCE OF OWNERS

Included in this category are:

a. An Outgrowth of Local People
b. Owners Wanted Plant to Remain Near Their Homes

49. RELATIONSHIP TO HANDICAPPED AND RETIRED PEOPLE

Included in this category are:

a. Producing a Product to be Utilized by Those Who are Handicapped, Retired or in Poor Health

50. CLIMATE

Included in this category are:

a. Number of Rain-Free Days
b. Temperature

PLANT SITE SELECTION FACTORS (CONT.)

51. AIR TRANSPORTATION

Included in this category are:

a. A Desire to be Close to a Major Airport
b. Air Mail
c. Cost of Transportation

52. GROUND TRANSPORTATION

Included in this category are:

a. Adequacy and Price of Rail Transportation
b. Adequacy and Price of Truck Transportation

53. COMMUNITY SIZE AND ADVANTAGES

Included in this category are:

a. Desire for a Certain Size City
b. Schools, Libraries, Etc.
c. Planning and Zoning Ordinances

54. EDUCATION (COLLEGE TOWN)

Included in this category are:

a. Desire to be Near a Major University
b. Research Connection
c. Symbiotic Relationships

PLANT SITE SELECTION FACTORS (CONT.)

55. EDUCATION (VOCATIONAL AND/OR TECHNICAL)

Included in this category are:

a. Apprenticeship Training
b. A School or a Program
c. Vocational School people's attitudes

56. RECREATIONAL ACTIVITIES

Included in this category are:

a. Skiing, Golf, Etc.
b. Mountains, Lakes, Etc.
c. Distance as a Factor

57. AVAILABLE BUILDINGS

Included in this category are:

a. Buildings Available for Lease or Rent
b. Adequate Space
c. Cost of Construction

58. ADEQUATE FINANCE

Included in this category are:

a. Attitude of Bankers
b. Available Capital
c. Interest Rates

PLANT SITE SELECTION FACTORS (CONT.)

59. EQUIDISTANT TO MARKET

Included in this category are:

a. Distance to Market Being the Same in All Directions

60. TRAFFIC

Included in this category are:

a. Desire for Walk-In or Drive-In Traffic
b. Ease of Contact by Suppliers
c. Ease of Customer Communication

61. INCOME OF RESIDENTS OF THE COMMUNITY

Included in this category are:

a. An Evaluation of the Progressiveness of the Community
b. Dollars Available for Purchase

62. TAXES

Included in this category are:

a. Inducements to Locate
b. Corporation and Income Taxes
c. Total Taxes

63. MOONLIGHTING OPERATIONS

Included in this category are:

a. A Place Provided Whereby a Person Could Remain Employed and Start His Business

PLANT SITE SELECTION FACTORS (CONT.)

64. TRIBAL COUNCIL HELP

Included in this category are:

a. Finance, Buildings, Labor, Etc., being Sponsored by Indian Tribes

65. FEDERAL FUNDS AVAILABLE

Included in this category are:

a. Types of Projects Where Federal Funds are Available

66. AVAILABLE RAW MATERIALS

Included in this category are:

a. Mineral Deposits

67. COMMUNITY ATTITUDES

Included in this category are:

a. Attitude of Citizens of Community
b. Progressive vs Status Quo

68. UTILITIES

Included in this category are:

a. Water, Gas, Power, Etc.

PLANT SITE SELECTION FACTORS (CONT.)

69. POLLUTION, ETC.

Included in this category are:

a. Water, Such as a River, to Carry Away Waste

POPULATION TABLE

BY NUMBER OF EMPLOYEES

(INTERVIEWEE GROUP)

STATE	1-100 Employees	101-1000 Employees	Over 1000 Employees	TOTAL
COLORADO	20	3	2	25
NEW MEXICO	28	5	0	33
ARIZONA	17	4	3	24
NEVADA	10	5	0	15
IDAHO	2	0	0	2
UTAH	7	5	0	12
WYOMING	2	3	0	5
TOTALS	86	25	5	116

(QUESTIONNAIRE GROUP)

STATE	1-100 Employees	101-1000 Employees	Over 1000 Employees	TOTAL
COLORADO	24	4	0	28
NEW MEXICO	1	0	0	1
ARIZONA	13	0	1	14
NEVADA	1	0	0	1
IDAHO	4	0	0	4
UTAH	30	9	1	40
WYOMING	2	0	0	2
TOTALS	75	13	2	90

RANK CORRELATION

FORTUNE SURVEY VS QUESTIONNAIRE GROUP

COMMUNITY FACTORS	FORTUNE RANKING	QUESTIONNAIRE GROUP	d	d^2
Good Employee-Employer Relationship and Worker Productivity	1	2	1	1
Community Attitude Towards Industry	2	6	4	16
Educational Opportunities-Availability of Training Facilities	3	1	-2	4
Local and State Tax Concessions	4	8	4	16
Recreational Opportunities	5	5	0	0
Local or State Financing	6	7	1	1
Population	7	3	-4	16
Good Weather	8	4	-4	16
				70

$$r = 1 - \frac{6 \sum_{i=1}^{N} di^2}{N(N^2-1)}$$

$$r = 1 - \frac{6(70)}{5(63)} = \frac{420}{315} = 1.33$$

$$r = 1 - 1.33$$

$$r = - .33$$

RANK CORRELATION

FORTUNE SURVEY VS COMBINED QUESTIONNAIRE AND INTERVIEWEE GROUPS

COMMUNITY FACTORS	FORTUNE RANKING	COMBINED RANKING	d	d^2
Good Employee-Employer Relationship and Worker Productivity	1	3	2	4
Community Attitude Towards Industry	2	6	4	16
Educational Opportunities-Availability of Training Facilities	3	1	-2	4
Local and State Tax Concessions	4	4	0	0
Recreational Opportunities	5	8	3	9
Local or State Financing	6	7	1	1
Population	7	2	-5	25
Good Weather	8	5	-3	9
				68

$$r = 1 - \frac{6 \sum_{i=1}^{N} di^2}{N(N^2-1)}$$

$$r = 1 - \frac{6(68)}{5(63)} = \frac{408}{315} = 1.30$$

$$r = 1 - 1.30$$

$$r = -.30$$

RANK CORRELATION

INTERVIEWEE GROUP VS FORTUNE SURVEY

COMMUNITY FACTORS	FORTUNE RANKING	INTERVIEWEE RANKING	d	d^2
Good Employee-Employer Relationship and Worker Productivity	1	6	5	25
Community Attitude Towards Industry	2	5	3	9
Educational Opportunities-Availability of Training Facilities	3	1	-2	4
Local and State Tax Concessions	4	2	-2	4
Recreational Opportunities	5	8	3	9
Local or State Financing	6	3	3	9
Population	7	4	3	9
Good Weather	8	7	-1	1
				70

$$r = 1 - \frac{6\sum_{i=1}^{N} di^2}{N(N^2 - 1)}$$

$$r = 1 - \frac{6(70)}{5(63)} = \frac{420}{315} = 1.33$$

$$r = 1 - 1.33$$

$$r = 1 - .33$$

RANK CORRELATION

A COMPARISON BETWEEN FORTUNE SURVEY AND THIS SURVEY

(BY COUPLING OF FACTORS)

FACTORS	RANKINGS ACCORDING TO WEIGHTED SCORES			COMBINATION OF QUESTIONNAIRE AND INTERVIEWEE GROUPS
	FORTUNE SURVEY	INTERVIEWEE GROUP	QUESTIONNAIRE GROUP	
Labor Supply and Labor Relations-Available Skilled Technical and Professional Help	1	2	1	1
Available Raw Materials, Utilities and Water	2	5	13	9
Proximity to Customers for Transportation and Delivery-A Growing Regional Market	3	3	3	2
Ample Area for Future Expansion-Cost of Construction-Cost of Property	4	1	4	3
Transportation by Ground and Water	5	4	2	4
Size and Advantages of the Town Itself	6	12	5	10

RANK CORRELATION

INTERVIEWEE GROUP VS FORTUNE SURVEY

5 TOP RATED FACTORS	FORTUNE SURVEY	INTERVIEWEE GROUP	d	d^2
Labor	1	2	1	1
Raw Materials	2	5	3	9
Market	3	3	0	0
Available Land and Buildings	4	1	-3	9
Transportation	5	4	-1	1
				20

$$r = 1 - \frac{6\sum_{i=1}^{N} di^2}{N(N^2 -1)}$$

$$r = 1 - \frac{6(20)}{5(24)} = \frac{120}{120} = 1$$

$r = 1 - 1 = 0$

0 = No Significant Correlation

RANK CORRELATION

QUESTIONNAIRE GROUP VS FORTUNE SURVEY

FIVE TOP RATED FACTORS	FORTUNE SURVEY	QUESTIONNAIRE SURVEY	d	d^2
Labor	1	1	0	0
Raw Materials	2	5	3	9
Market	3	3	0	0
Available Land and Buildings	4	4	0	0
Transportation	5	2	-3	9
				18

$$r = 1 - \frac{6 \sum_{i=1}^{N} di^2}{N(N^2-1)}$$

$$r = 1 - \frac{6(18)}{5(24)} = \frac{108}{120} = .90$$

$$r = 1 - .90$$

$$r = -.10$$

- .10 = A very slight negative correlation.

RANK CORRELATION

FORTUNE SURVEY VS COMBINED QUESTIONNAIRE AND INTERVIEWEE GROUPS

FIVE TOP RATED FACTORS	FORTUNE RANKING	COMBINED RANKING	d	d^2
Labor	1	1	0	0
Raw Materials	2	5	3	9
Market	3	2	-1	1
Available Land And Buildings	4	3	-1	1
Transportation	5	4	-1	1
				12

$$r = 1 - \frac{6 \sum_{i=1}^{N} di^2}{N(N^2-1)}$$

$$r = 1 - \frac{6(12)}{5(24)} = \frac{72}{120} = .60$$

$$r = 1 - .60$$

$$r = 1 - .40$$

RELATIONSHIP OF VOCATIONAL EDUCATION TO PLANT SITE SELECTION

QUESTIONNAIRE

NAME OF COMPANY____

ADDRESS OF HOME OFFICE____________________________________

TYPE OF PRODUCT MANUFACTURED______________________________
(such as steel, clothing, aircraft, electronic equipment, etc.)

Indicate the number of manufacturing plants your company has located in each of the following states since January 1, 1960:

COLORADO________________	IDAHO________________
NEW MEXICO________________	UTAH________________
ARIZONA________________	WYOMING________________
NEVADA________________	

Indicate the number of manufacturing plant sites your company officials have investigated in each of the following states since January 1, 1960:

COLORADO________________	IDAHO________________
NEW MEXICO________________	UTAH________________
ARIZONA________________	WYOMING________________
NEVADA________________	

Are you presently investigating one or more possible plant sites in one or more of the following states: Colorado, New Mexico, Arizona, Nevada, Idaho, Utah, or Wyoming? (If answer is yes, circle the state(s))

What factors are investigated by your company officials prior to selecting a plant site? (Rank 1 as most important, 2 next, etc.)

RANK	ITEM INVESTIGATED
______	____________________
______	____________________
______	____________________

________ ______________________

________ ______________________

________ ______________________

________ ______________________

List the average number of employees in each plant located in Colorado, New Mexico, Arizona, Nevada, Idaho, Utah, or Wyoming, since January 1, 1960:

Plant 1________ Plant 5________

Plant 2________ Plant 6________

Plant 3________ Plant 7________

Plant 4________

Indicate the importance you place upon assistance from the following people or organizations in helping you select a plant site:

	VERY IMPORTANT	IMPORTANT	UNIMPORTANT
Chamber of Commerce			
Manufacturing Assn.			
Vocational School Educators			
U. S. Employment Service			
Allied Business Association			
Local Government Officials			
State Government Officials			
National Government Officials			
Labor Organizations			
University Educators			
Others (Indicate)			

1. Are brochures indicating the various vocational educational facilities and programs available in a community helpful to your company in selecting a plant site? Yes No Sometimes (circle correct response(s))
2. Are brochures indicating the various vocational education facilities and programs available in a state helpful to your company in selecting a plant site? Yes No Sometimes (circle correct response(s))
3. In any community advertising brochures you may have received while investigating plant sites, were there references made to vocational education facilities and programs? Yes No Sometimes (circle correct response(s)
4. Is the adequacy of vocational education a factor you consider prior to expanding your existing plant facilities and personnel? Yes No Sometimes (circle correct response(s)
5. Is vocational education a factor considered by your company officials prior to selection a plant site? Yes No Sometimes (circle correct response(s))

If your answer to question number 5 is yes, please answer questions 6 through 14. If your answer to question number 5 is no, disregard questions 6 through 14.

6. Do your company officials visit the vocational facilities of a community prior to selecting their plant site? Yes No Sometimes (circle correct response(s))

7. Do your company officials secure a commitment from vocational schools of their willingness to, and ability to, train workers for your company prior to selecting your plant site?

Yes No Sometimes (circle correct response(s))

8. If no vocational education facilities exist in a community you are investigating for a possible plant location, which of the following responses apply? (circle the letter in front of each correct statement):

a. Our company will not consider locating a plant in any community which does not have vocational facilities and programs adequate to meet our training needs.

b. Our company will accept a commitment by a state or local Board of Education to provide facilities and programs where they do not presently exist.

c. Our company will look to other agencies to supply the required occupational training programs where neither a school exists, nor a commitment can be obtained from vocational educators.

d. Where no vocational training program exists, we will provide our own training.

e. Where no vocational training programs exist in a community, we ask the United States Employment Service, Local Office, to help recruit a trained work force from outside the area.

9. As a factor in your plant site selections, do you have a preference as to the kind of school conducting vocational education?

Yes No Sometimes (circle correct response(s)) If answer is "Yes," rate the following schools according to your preference: 1 being most preferred, 2 next, etc.)

University or College____________________

Private Business College____________________

Private Trade Schools____________________

Junior or Community Colleges____________________

High School Vocational Education Schools __________

10. Indicate the importance you place upon the following vocational programs as factors in influencing your plant site selection:

	VERY IMPORTANT	IMPORTANT	UNIMPORTANT
a. Supervisory and/or management training	____	____	____
b. Technician level training	____	____	____
c. Skilled craftsman training	____	____	____
d. Semi-skilled training such as programs for assemblymen, operators, etc.	____	____	____
e. Service oriented training such as programs for health and cafeteria occupations, etc.	____	____	____

11. Indicate the specific vocational courses which are factors in your site selection. (circle the letter in front of correct response(s))

a. business and secretarial training

b. metal and metal fabrication trades

c. machine trades

d. automotive trades

e. needle trades

f. construction trades

g. graphic arts

h. electrical trades

i. electronic trades

j. agricultural occupations

k. sales occupations

l. health occupations

m. others (indicate)______________________________________

____

____

12. Have you ever rejected a plant site because of a lack of vocational education facilities and programs? Yes No Sometimes (circle correct response(s))

13. How much importance do you place upon the following features of a vocational education program in plant site selection?

	VERY IMPORTANT	IMPORTANT	UNIMPORTANT
a. Training programs conducted in your plant by vocational people			
b. Training programs conducted in a vocational school			
c. School facilities including tools, staff, etc.			
d. Community attitude towards vocational school			
e. Courses which carry college credit			
f. Courses without college credit (terminal credit)			

14. Does the proximity of the vocational school to the proposed plant site make a difference in the degree of significance you place upon vocational education as a positive factor in plant site selection? (check the correct response(s))

DISTANCE OF SCHOOL FROM PROPOSED SITE	VERY SIGNIFICANT	SIGNIFICANT	INSIGNIFICANT
Within the same community	________	________	________
Within the same county	________	________	________
Within 20 miles	________	________	________
Within 40 miles	________	________	________
Within 80 miles	________	________	________
Over 80 miles away, but Within the State	________	________	________